COLUMBIA LIBRARIES OFFSITE
HEALTH SCIENCES STANDARD
HX64071430
RK686 R51
A catalogue of Ritte
RECAP

RITTER
DENTAL
EQUIPMENT

Columbia University
in the City of New York

College of Physicians and Surgeons

Library

Digitized by the Internet Archive
in 2010 with funding from
Columbia University Libraries

http://www.archive.org/details/catalogueofritte00ritt

A Catalogue of

RITTER DENTAL EQUIPMENT

Chairs ⁘ Engines ⁘ Lathes ⁘ Distributing Panels
Air Compressors ⁘ Unit Equipments ⁘ Ionization
Equipments ⁘ Spray Bottle Warmers ⁘ Air Fittings
⁘ Supplies and Accessories for the above ⁘

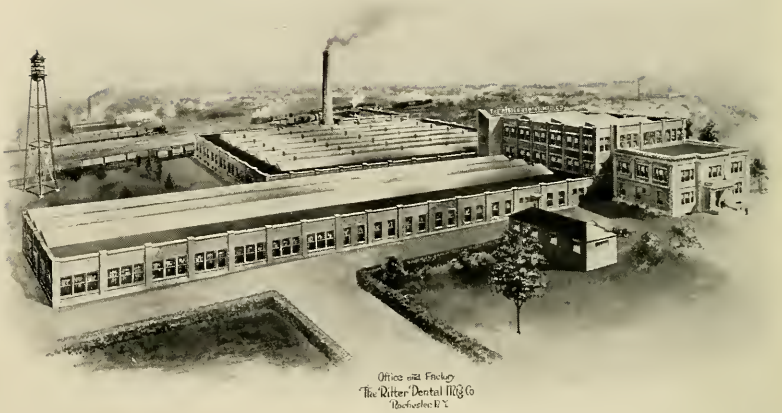
THE

RITTER DENTAL MFG. CO.

of ROCHESTER, N. Y., U. S. A.

Established 1888

RK699
R51



Copyrighted 1919
by
THE RITTER DENTAL MFG. CO.

RITTER Product has served the dental profession for thirty odd years in practically every part of the world, with the result that the name "RITTER" on dental equipment is generally accepted as being a guarantee of sterling quality, absolute satisfaction and continued good service.

FOREWORD

NOW-A-DAYS modern equipment is just as essential as modern methods of practice, for it is a generally conceded fact that the public is guided to a considerable extent not only by the reputation of the practitioner and his ability to do efficient work, but also by the appearance and equipment of his office.

It requires time to demonstrate ability, but success which is usually coupled with ability, is immediately apparent in a modern office. Therefore money invested in new equipment installed in offices properly furnished and tastefully decorated is well spent.

For more than a quarter of a century Ritter Dental Equipment has been made in accordance with the most approved manufacturing methods in a complete factory, thoroughly equipped with modern machinery, operated by skilled mechanics, and the product in turn has been marketed to the profession through dental dealers throughout the world, thereby enabling us to co-operate with the dealers in rendering service to the consumer, which service we consider a component part of Ritter Product.

We have a competent organization to handle and render this service to members of the profession. Our years of experience in planning dental office suites including suggestions for the proper arrangement of equipment and furniture, appropriate decorations, harmonizing draperies and floor coverings, practical lighting fixtures, office systems and suggestions for stationery, announcement and appointment cards, has enabled us to be of material service to practitioners in all parts of the world. This service is entirely at the disposal of any practitioner, without charge or obligation on their part, whether or not they own or purchase Ritter Equipment.

THE RITTER DENTAL MFG. CO.

GUARANTEE

EVERY possible precaution is taken to keep our product free from imperfections in material and workmanship. We will adjust to the satisfaction of the owner, any time within one year from date of purchase, any defects not caused by misuse or neglect, upon receipt of the article in question at our factory, all transportation charges prepaid.

It is our desire to do everything that is consistent and possible to see that every article of our manufacture gives entire satisfaction and continued good service to the purchaser, for we are firm believers in the old adage that "A pleased customer is a firm's best advertisement," and that the policy which will best protect the interests of owners of Ritter Equipment is the policy that will best maintain the reputation of this Company and its Product.

General Information

OUR product is sold through dental dealers, a majority of whom carry a representative stock and are in a position to co-operate with us in serving the profession to the best advantage.

It is not always convenient or practical to withdraw funds from other sources with which to purchase new dental equipment, especially so where the purchase of a complete outfit is contemplated, and for this reason we have provided a plan whereby product of our manufacture together with other non-competitive dental office equipment and furniture may be purchased from dental dealers on the deferred or extended payment plan, making it possible to buy an entire outfit on convenient terms with only one payment per month to be taken care of. Single items or a complete outfit may be purchased upon an initial cash payment of 15% of the total amount of purchase, the remainder to be paid in monthly installments of not less than 4% of the balance of the amount, the account to be in the form of a conditional contract of sale with monthly installments or deferred payments evidenced by notes of denominations of even dollars bearing 6% interest from the date of contract. Full information in reference to this plan may be obtained of dental dealers or direct from us.

Where Ritter Product is purchased for cash the following discounts are allowed by dealers:

3% on amounts from $25.00 to $100.00
5% on amounts of and over $100.00

Orders for parts, sundries, etc., direct from our factory should be accompanied by remittance covering the cost of same, unless dealer's name is indicated and notice given to pass charge through said dealer.

When sending equipment for repairs, transportation charges should be prepaid, as we cannot assume charges either incoming or outgoing. ⁄ Whenever possible have repairs sent through dealers. ⁄ If sent direct to our factory they will be returned C. O. D. unless dealer's name is indicated and notice given to pass charge through him.

When ordering electrical equipment it is essential that the exact current, voltage and frequency be specified. ⁄ When ordering new parts or attachments for electrical equipment, always furnish serial number of the apparatus. ⁄ When ordering parts for chairs, kindly supply name of the chair, serial number, and if the parts are enameled, the finish of same.

Prices as quoted in separate pricelist in envelope on inside back cover of this catalog are all f. o. b. Rochester, N. Y.

MANUAL dexterity alone will not furnish the dentist the means of making a success of his professional career. His office must be equipped with an outfit of time and labor saving devices of the highest type so that he may be permitted to ask fees that are commensurate with the character of service demanded by an exacting clientele.

The Ritter Chair

FOR more than a quarter of a century the chairs made by this company have occupied a most enviable position in the trade and profession, for it has been our constant aim to anticipate the needs for improved equipment in keeping with the marked advance made by the dental profession from year to year. In its present high standard of development the Ritter Chair will deliver a maximum of adaptability and service with the fewest adjustments and at the same time insure comfort to both patient and operator. The modern dental office requires that the design of the dental chair be symmetrical and pleasing in appearance and that the finish be attractive and durable, and in keeping with these demands the Ritter Chair will be found to enhance the appearance of the best appointed office.

The Base

The disk plate or base is sufficiently large to insure a firm foundation for the chair without the necessity of screwing same to the floor, even when used in the most extreme positions. The inner edge of this plate is concave to give ample foot room when standing close to the chair, and heavily nickel plated rims are provided as a protection to the enameled portion of the plate. Ritter Chairs were the first in which the hydraulic principle of elevating and lowering was used and while minor changes and refinements have been made from time to time to keep pace with the general improvements in the chair, the underlying principle has not been altered and as it stands to-

Standard Position, Front

IT will be found to enhance the appearance of the best appointed office, for it is symmetrical in design and pleasing in appearance.

Standard Position, Back

IT has been designed with the idea of securing the greatest range of adaptability, combined with comfort to both the patient and operator.

day our hydraulic elevating mechanism is mechanically perfect. ⁘ The cylinder containing the working parts sets into the oil reservoir, insuring perfect lubrication to all working parts. ⁘ The elevating tubes with their tracks extend from within this cylinder and adjusted friction rollers guide these tubes at the top, while steel guide rods steady the lower end and provide long bearings which prevent the tubes from binding and twisting, in fact, make them absolutely rigid. ⁘ The tracks occupy but a small portion of the outside surface of the tubes, permitting the remainder to be finished in enamel.

Operation

A light, steady stroke or pressure on the foot lever rapidly elevates the chair. ⁘ Two elevating tubes operate simultaneously, thereby eliminating the usual jar or jolt experienced when separately operating tubes engage. As the extreme height is reached, a valve is automatically tripped, which brings the chair to a stop without the slightest perceptible jar. ⁘ To lower the chair a small release lever is depressed and the speed of the descent is under the entire control of the operator at all times. ⁘ A regulating valve is also provided to adjust the speed of the descent. ⁘ Releasing the pressure automatically brings the chair to a stop at any position and in reaching the lowest position a cushion valve operates and the chair comes to rest imperceptibly on a cushion of oil. ⁘ There are absolutely no jolts or jars in either its raising or lowering; in fact, the operation of the Ritter Chair is so smooth and easy that the patient is not aware when the chair has stopped, either in its ascent or descent. ⁘ The chair may be revolved easily on two highly polished bearing surfaces and may be instantly locked in any desired position by a convenient foot lever.

Adjustable Platform

The platform and foot rest is adaptable to patients of any size, and being of closed construction is more satisfactory from the standpoints of operation, comfort for the patient and cleanliness. The metal foot plates of the platform can be elevated to a single plane by a conveniently locked foot lever and lowered by an automatic device. This raised position is very desirable for small or medium sized patients and also valuable in the administration of anesthetics, as the platform presents no projection for the patient to secure a foot hold with the resultant physical strain to the patient and inconvenience to the operator. The heel plate is provided with an automatic lock which holds it firmly in position when raised to form a foot rest for very small children. The sides of the metal platform plates extend beyond and protect the enameled portion of the platform frames. These plates are covered with inlaid rubber mats of the best quality, which are removable, can be readily cleaned and add materially to the attractiveness of the chair.

The Body

The body of the Ritter Chair has been designed with the idea of securing the greatest range in adaptability, combined with comfort to both the operator and patient. It is balanced with exceptional accuracy and can be tilted, without the least exertion, to any desired angle. A light pressure of the hand or foot on the tilting lever releases the lock. Releasing the pressure automatically operates the lock that holds the chair rigidly in any position. The capacity of the seat can be varied by the lateral swinging movement of the arms to accommodate patients of any size with comfort. The arms may be dropped entirely out of the way or securely locked in any desired position, or they may be adjusted to a horizontal position and locked, forming a convenient seat for the operator.

High and Low Positions

AS the extreme height is reached a valve is automatically tripped, which brings the chair to a stop without the slightest jar, and at the lowest position a cushion valve automatically operates and the chair comes to rest imperceptibly on a cushion of oil.

Platform Raised, Arm Dropped, Back Pad and Head Rest Extended

THE platform and foot rest are adaptable to patients of any size, and being of closed construction are more satisfactory from the standpoints of operation, comfort to the patient and cleanliness.

THE self-conforming back eliminates the necessity of readjusting the back pad or head rest when the back is lowered from the standard to the horizontal or any intermediate position.

WHEN the back is lowered from the standard to the horizontal or any intermediate position on chairs not having the compensating back, it is necessary to readjust the head rest and back pad to insure comfort to the patient and facilitate the work of the operator.

Compensating Back

The compensating back is one of the most important features of the Ritter Chair for it automatically follows the lines of the body in whatever position the chair may be placed, making it unnecessary to readjust the back or head rest while patient is in the chair, regardless of position. The back is hinged in such manner that the pivoting point by which the patient swings, namely, the hip joint, and the hinge of the chair are in proper relation at all times, thus the back and the head rest automatically follow the body and absolutely retain their relative positions, making unnecessary the readjustment of any part of the chair while the patient is in it. By means of a compensating slide the upholstered back cushion is elevated to support the small of the patient's back as the back is reclined, thereby providing the proper support, eliminating the necessity of making additional adjustments when reclining the back, thus facilitating the work of the operator and providing greater comfort for the patient. The compensating back is equipped with a drop forged steel lock, which is positive in its operation and so constructed that it is absolutely impossible for it to slip. A very slight pressure on a lever is all that is required to release the lock and when this pressure is released it automatically locks again.

In raising the patient from a reclining position it is only necessary to lift from the back or head rest, as the back lock automatically releases when pressure is exerted from outside or rear of lock and catches or locks, in any position, when pressure is removed. This enables the operator to raise even a very heavy patient from reclining to upright position without the strain and exertion necessary to accomplish the same result, in chairs so constructed that the back must necessarily be raised and supported with one hand and locked with the other.

For Children

THE cushion back is mounted on a suspended slide enabling instant adjustments for the comfort of patients of any size, and the width of the seat can be varied as desired by the lateral swinging movement of the arms.

IT is possible to comfortably accommodate children of any age, without a special seat, by adjusting the head rest, raising the heel plate, lowering the back and adjusting same forward on the seat and moving the arms inward from both sides.

The adjustments automatically obtained by the use of the compensating back eliminate the necessity of tilting the seat, which is a decided advantage in that the patient is always able to easily reach the cuspidor, which is, to say the least, very inconvenient when the chair is tilted. ⁄ The back is suspended at three points and is absolutely rigid in any adjusted position. ⁄ The cushion back is mounted on a suspended slide, enabling instant adjustment for the comfort of patients of any size. ⁄ This slide also carries the head rest extension slide and either of the slides may be easily moved up or down with the slightest pressure on the tip of the levers, which are automatically locked when released, enabling adjustments to be readily made with one hand.

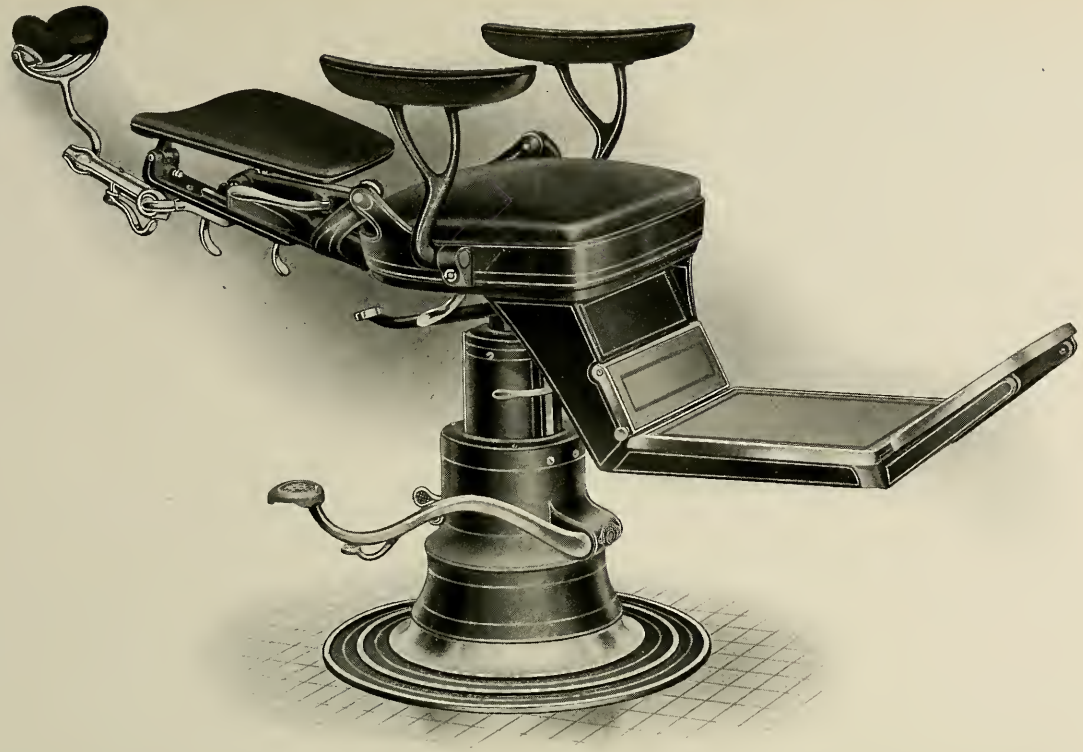
Self-Adjusting Head Rest

The improved Ritter head rest is automatic in its adjustments, the pads being fastened to a swinging yoke and lock to the yoke in eight distinctively different positions, permitting any conceivable adjustment. ⁄ A desirable feature of the head rest is the ball and socket head rest support by means of which the head rest is fastened to the extension slide. ⁄ With this ball and socket joint the head rest may be adjusted to any desired position and locked by the operation of a single cam lever.

The construction of the head rest cushions is such that a pneumatic cushion effect is obtained without the disadvantage of using air.

Children's Positions

The adaptability of the Ritter Chair makes it possible to accommodate children of any age without a special seat, for the head rest may be adjusted to fit a very small child and by lowering the back and adjusting same forward on the seat and moving the arms inward from both sides it



Back Pad and Head Rest Lowered

THE compensating back automatically follows the lines of the body in whatever position the chair may be placed, making it unnecessary to readjust the back or head rest while the patient is in the chair, regardless of position.

takes but a moment to fit comfortably even the smallest patient and in so doing not conflict in any way with the operator or his work.

Levers

The principal levers used on the chair are drop forged steel, which permits lighter construction and therefore more graceful design. All exposed parts of the levers are first copper and then nickel plated which produces a very durable finish.

Arms

The lower portion of the arms are pressed steel stampings, grained mahogany and finished in enamel. The tops are of genuine mahogany, thus insuring maximum wear and at the same time being sanitary.

Locks

All locks used on the chair are positive in their operation, are constructed of the very best materials and will thus give maximum service. The slightest pressure releases them and they automatically lock when the pressure is relaxed, this being one of the many exclusive features to be found only on the Ritter Chair.

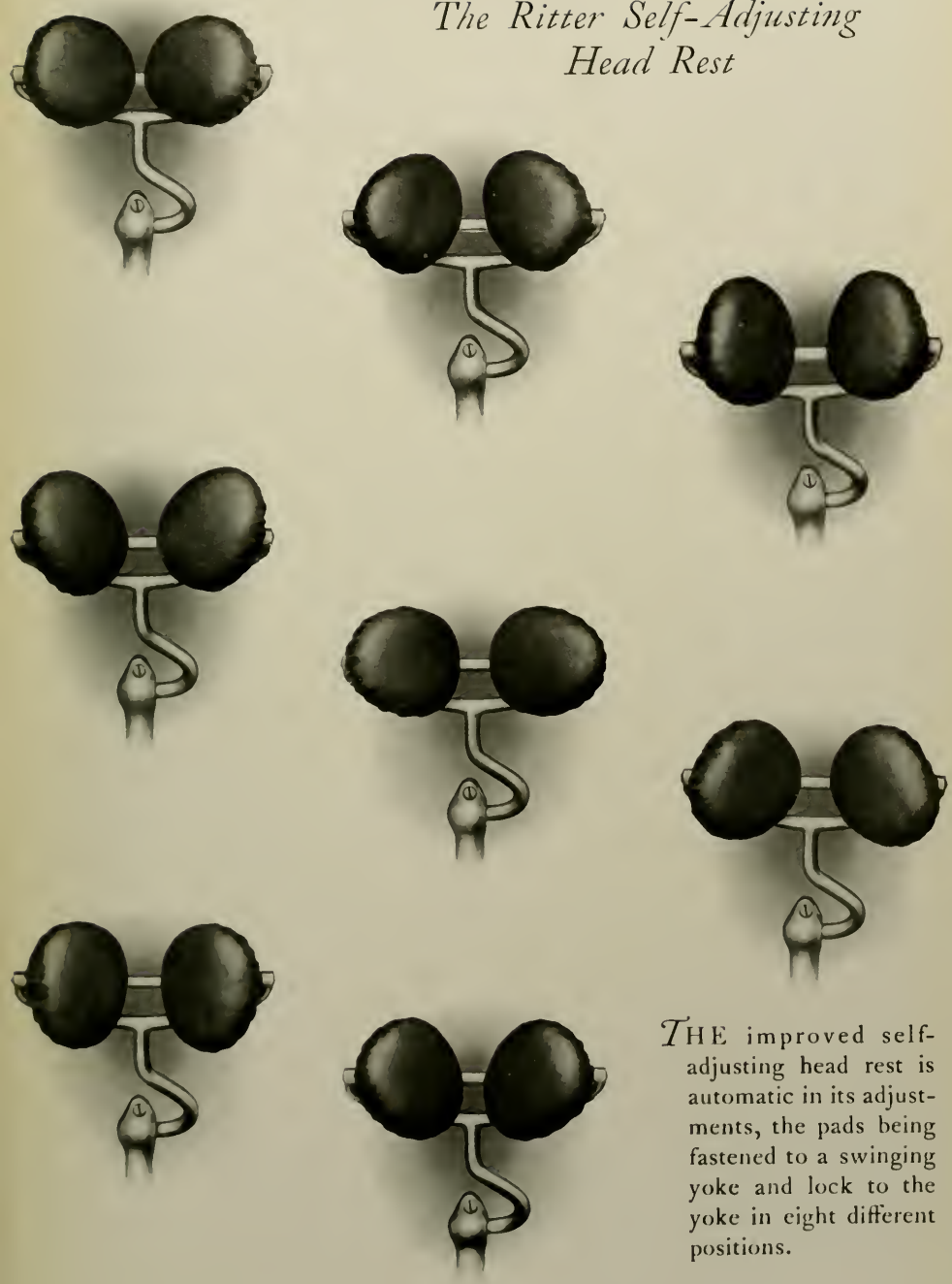
Finish

All exposed metal parts are either nickel plated or enameled and every precaution is taken to insure a final finish that will be attractive to the eye and give maximum service, the result being that "distinctively different" appearance which has always been characteristic of Ritter Chairs.

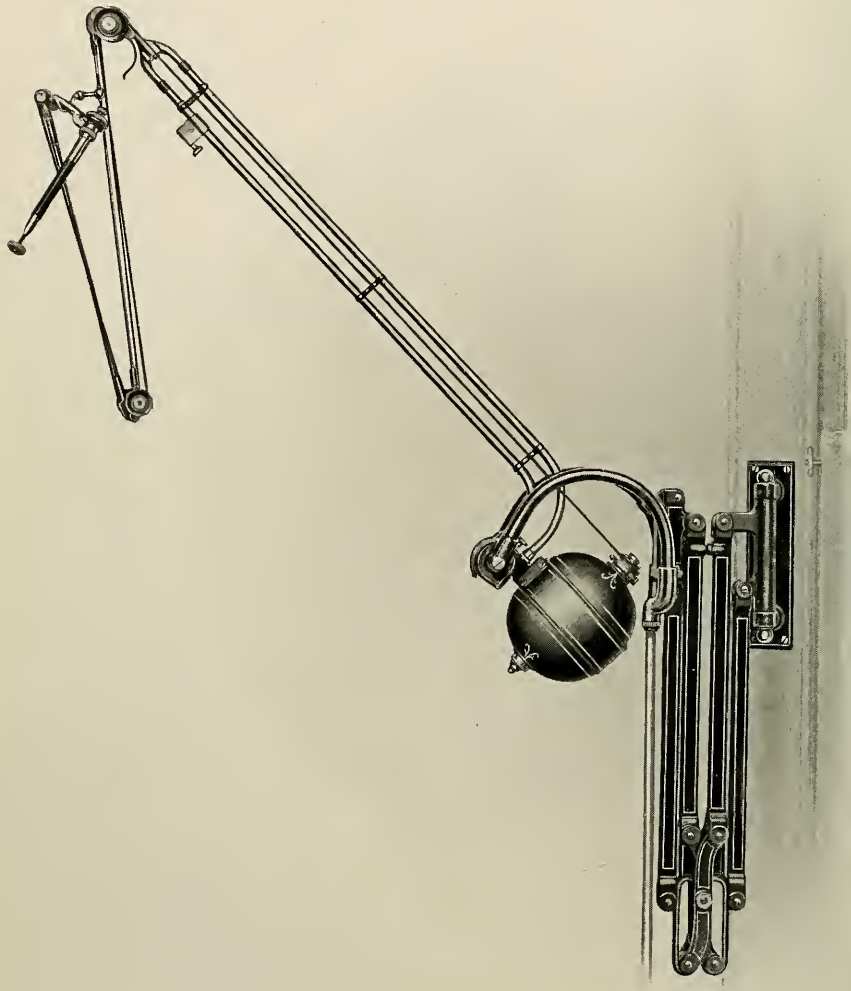
Tilted

IT is balanced with exceptional accuracy and can be tilted without the slightest exertion to any desired angle. A slight pressure of the hand or foot releases the tilting lock.

The Ritter Self-Adjusting Head Rest



THE improved self-adjusting head rest is automatic in its adjustments, the pads being fastened to a swinging yoke and lock to the yoke in eight different positions.



All Cord Type

IT possesses all the salient features found in our previous models combined with the most modern principles of construction.

The Ritter Dental Engine

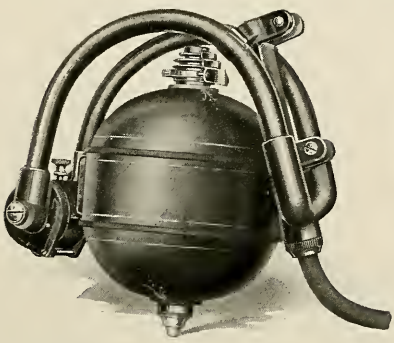
THE Ritter Model "C" Folding Bracket, Swivel Type, Electric Dental Engine is the result of many years' experience in the manufacture of dental engines. It possesses all the salient features found in our previous models, combined with the most modern principles of construction, thus insuring an engine of pleasing design, maximum adaptability and satisfactory service. It is perfectly poised, evenly balanced and runs practically noiseless.

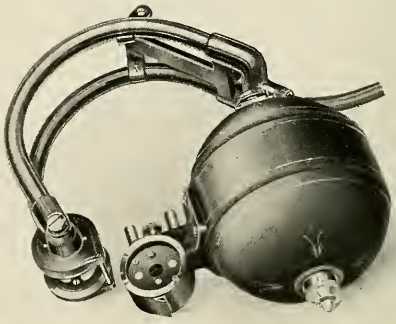
Folding Bracket

The folding bracket is constructed of special steel, all bearing surfaces being ground in an accurate manner, to insure freedom of movement in opening and closing. The poise of the bracket is such that it may be opened to any desired position and will maintain that position without danger of shifting and without locking. When completely closed it is compact and projects but a few inches from the wall and is mounted at a height sufficient to clear the cuspidor, bracket table and radiator.

Supporting Yoke

The motor is mounted in a supporting yoke consisting of two semi-circular tubes attached to the supporting frame of the bracket. The electric wires pass through these yoke tubes and terminate in two insulated connection plates in each yoke tube elbow. The current passes from these wires through the contact brushes direct to the motor terminals. With this improved method





of construction there are no wires to be broken through the constant turning of the motor and the latter can be readily attached or dismounted without disturbing any wires or small parts.

Swivel Motor

Both the motor and engine arm are swiveled in the yoke support giving the outer end of the arm and hand piece a vertical range equivalent to that of the modern dental chair. Therefore, regardless of the height of the chair, the hand piece can always be placed in a position for convenient operation, a feature that is exclusive with the Ritter Engine.

Balance

The distribution of the weight of the motor and engine arm with hand piece attached is such that an exact balance is obtained and consequently the arm can be moved up or down without exertion and will remain in any desired position without being locked.

Suspended Elbow Arm

This exclusive feature in the Ritter All-cord Type Engine allows absolute freedom of movement and pro-

vides a range or reach of considerable distance without putting any strain on the hand of the operator. The elbow arm is suspended and hinged in such manner as to insure perfect flexibility and ease of movement at the hand piece. This construction is an extremely important feature as it affords the operator a much greater range of movement than is possible to obtain with any other dental engine and this range is obtained without any effort or the least sensation of restraint.

The main belted arm makes it possible to remove the motor and other bulky parts as far as possible from patients, leaving only the parts of light construction and without mechanical appearance nearest the patients and therefore not likely to look formidable to them.

The length of this arm and its arrangement is such that it clears the bracket table or other fixtures and is adapted to receive either the all-cord hand piece when used in connection with the suspended elbow arm or the regular No. 7 hand piece with cable and sleeve, duplex spring connection and slip joint. The entire arm from motor pulley to hand piece is equipped with a non-twisting belt device which prevents belt from wrapping around the rods.

Motor

The construction of the motor insures maximum efficiency and power with minimum current consumption. The motor runs with practically no noise. By means of a foot controller equipped with a very efficient locking feature, the speed may be readily varied from 1200 revolutions per minute at the lowest to 3600 revolutions per minute at the highest.

Bearings

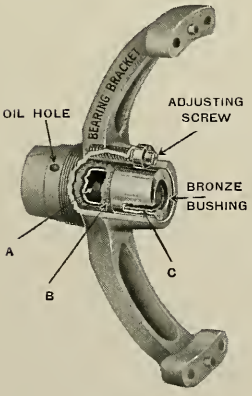
The bearing bushings are made of selected bearing bronze fitted with accuracy and being very long in proportion to their diameters, wear is reduced to the minimum. These bronze bushings are entirely independent of the bearing supports and may be readily renewed if occasion requires.

Armature Shafts

The armature shafts are of the best tool steel, tempered and accurately ground to a mirror finish and are interchangeable.

Oiling

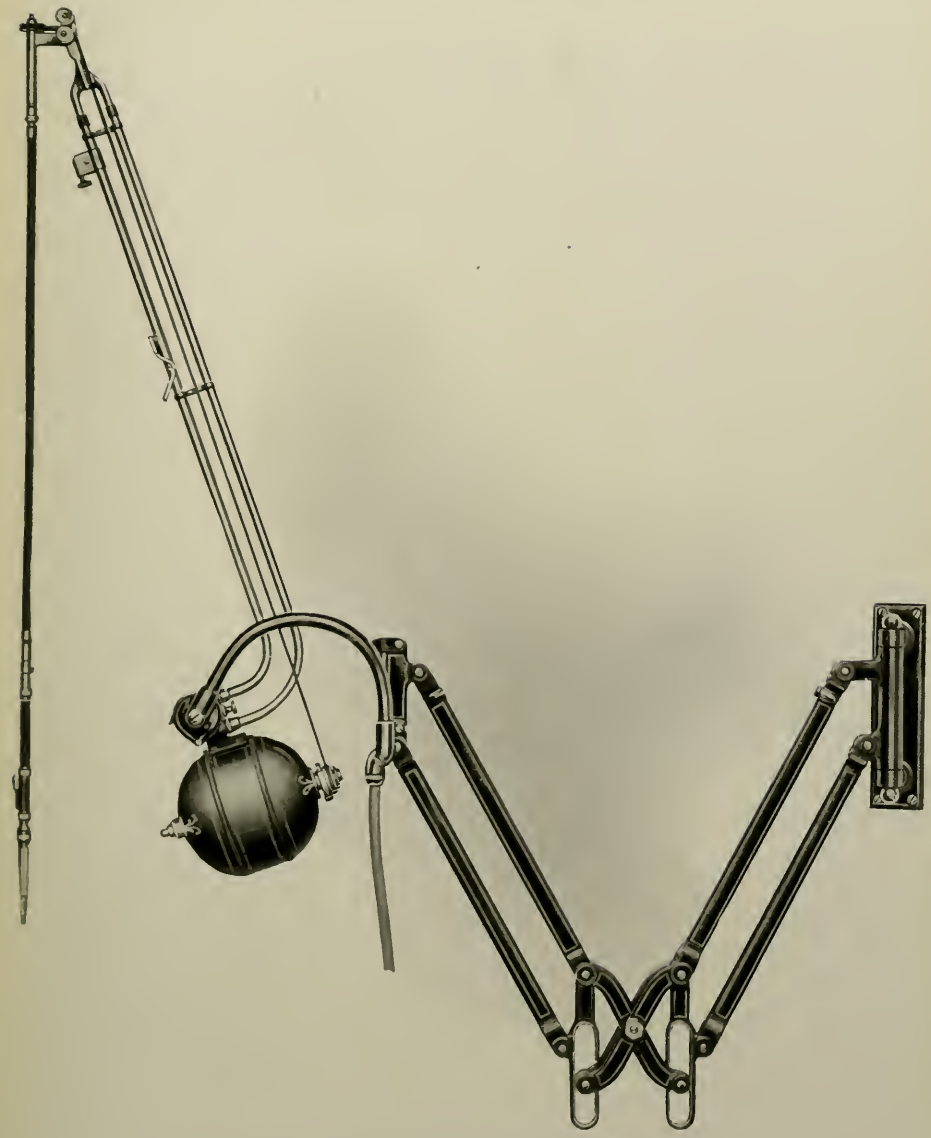
The improved self-contained oiling arrangement eliminates the necessity of exposed oil cups and annoyance from this source and insures positive lubrication of the bearings as long as there is oil in the wick, thus the chances for dry bearings are reduced to the minimum.



Armature Construction

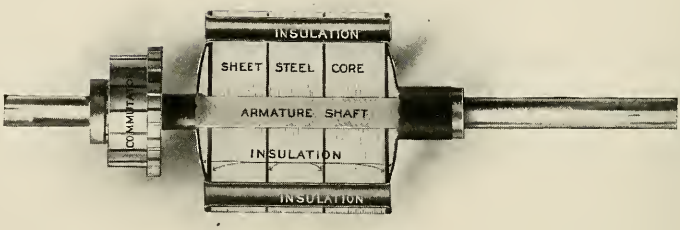
The most approved methods of armature construction insures a smooth running motor, easily controlled and giving maximum efficiency. The running balance test is used to obtain accurate balance and elimination of vibration at the hand piece and insures a finished product of the best possible construction.

Wick B wrapped entirely around the bronze bushing is thoroughly saturated with oil and wick A passes through the bearing bushing, one end touching the shaft, the other in contact with the main wick B. When shaft is in motion, oil is drawn by capillary attraction from wick B, by way of wick A to the interior of the bushing, thus lubricating the shaft. Surface oil working out at the ends of bearing bushing is absorbed by the small wick C returning to the main wick B, thereby producing a complete circulation of oil.



Belt Driven, Cable Type

THE poise of the folding bracket is such that it may be opened to any desired position and will maintain that position without danger of shifting and without locking.

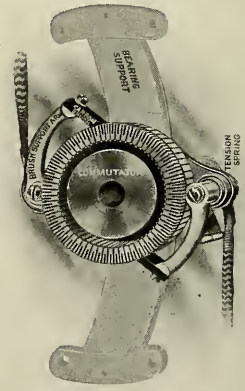


Sectional view of direct current armature with commutator.

Brushes

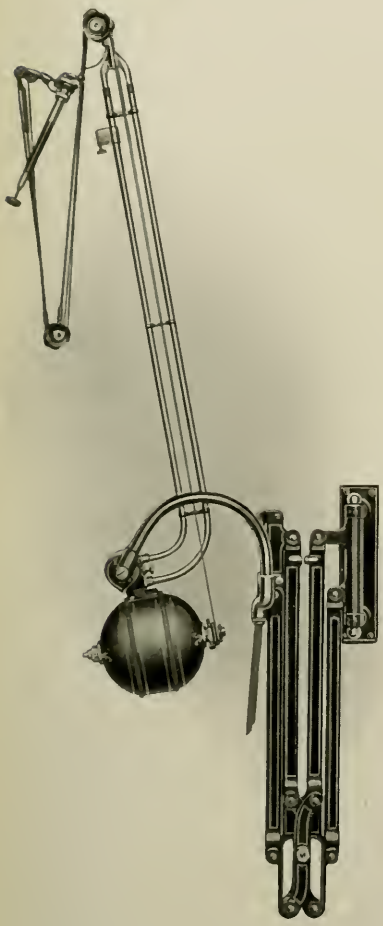
Brushes for direct current engines are of bronze gauze and for the alternating current engine, carbon. A spring tension device on the brush holder insures equal tension on the brushes, automatically maintained, as the brushes are gradually consumed.

The alternating current motor is provided with a stop screw which prevents the brush supporting arm coming into contact with the commutator, should the carbon brush wear too low.

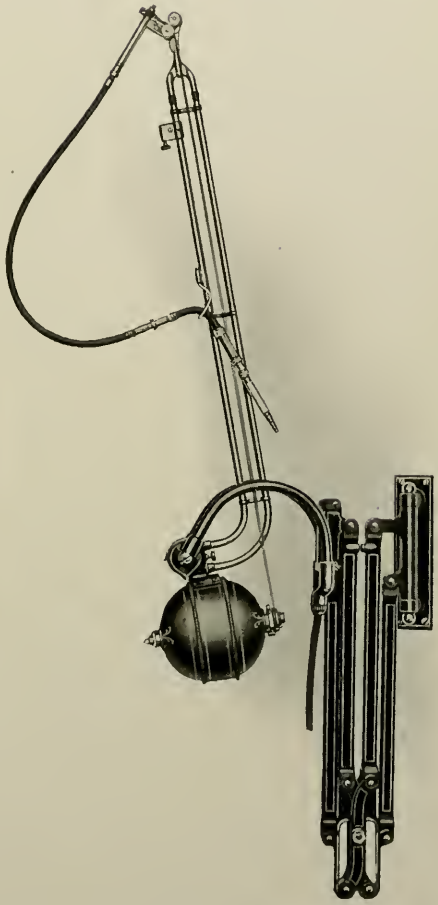


Pulleys

The double motor drive pulley is made of hardened steel with grooves of a modified V shape giving the greatest possible gripping surface for the belt. The hubs of the idler pulleys on the belted arm are of tempered steel, accurately ground and polished and run on tempered steel shafts which are ground and then polished to a mirror finish. These pulleys are provided with oil retaining rings made of felt, insuring adequate lubrication.



All Cord Type



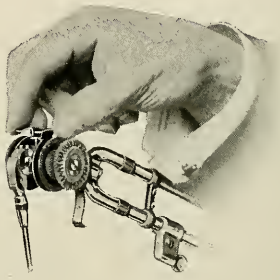
Belt Driven, Cable Type

WHEN the folding bracket is completely closed it is compact and projects but a few inches from the wall and is mounted at a height sufficient to clear the cuspidor, bracket table and radiator.

A brush wheel for cleaning burrs, etc., can be instantly attached to the belt driven, cable type engine.

Belt Guards

Belt guards are provided on all pulleys to prevent the belt from running off, thus eliminating the arguments that have been used against belt or all-cord type dental engines.



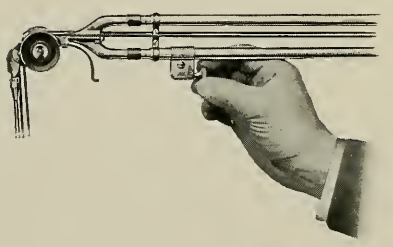
A brush wheel for cleaning burrs, etc., can be instantly attached to the all cord type engine. The guards can be easily lifted when putting on a new belt.

Belt Compensation

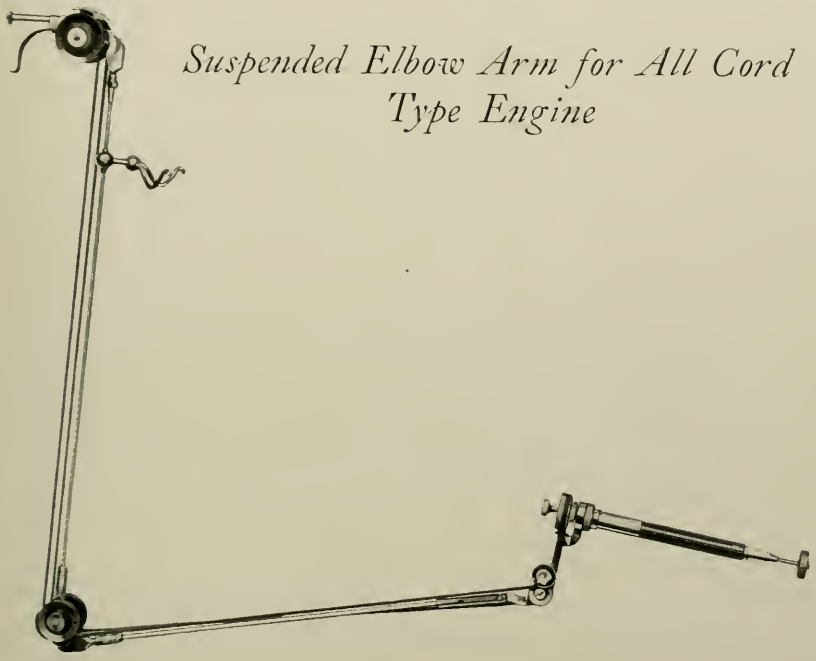
An exclusive feature of the Ritter Engine is its belt compensating device whereby by means of the construction and relation of the pulleys and hinged pivots, the belt is kept at a given tension irrespective of the position of the hand piece or arm.

Belt Adjuster

A practical self-locking belt adjuster is also provided making possible the most delicate adjustment of the belt, by means of a pinion and screw under the forward end of the arm.



By means of this adjuster a stretch of ten inches in the belt may be compensated for.

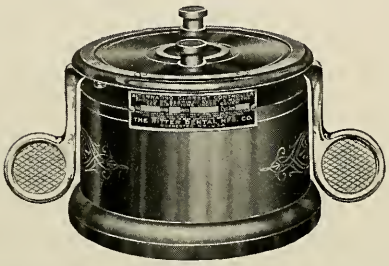


Suspended Elbow Arm for All Cord Type Engine

Cable and Sleeve Attachment for Belt Driven, Cable Type Engine

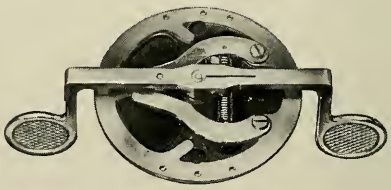
CONTROLLER

The portable Foot Controller has a single lever projecting on both sides of the case by means of which the motor is started and stopped and the various speeds controlled. It may be placed on the floor in any desired position, but preferably just back of the chair.



Speed Regulator

When the lever occupies the central position no current flows. A slight movement of the lever in one direction will start the motor running forward, a movement in the opposite direction will operate the motor in reverse, the speed of the forward or reverse being regulated by the distance the lever is moved from the center. The return of the lever to the center from either side instantly stops the engine. Four speed regulations are provided for each direction of rotation.



A spring device in controller automatically returns the foot lever to the center position.

Locked or Free

By means of two very conveniently located buttons, the controller lever may be locked in any desired position or returned to the center automatically when pressure is released. Thus the controller may be used either with or without locking device and it is a simple matter to change from one to the other.

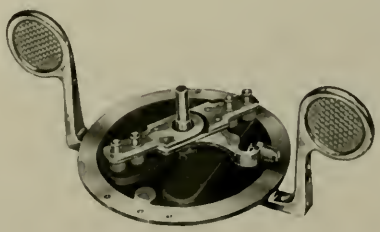
Contacts or Segments

The contacts or segments, which control the circuit of the various speeds and the starting and stopping, are screwed to a piece of slate and the connections between the segments are made of metal strips held under the heads of the same screws that hold the segments in place on the slate. This construction makes it utterly impossible for a poor connection to exist and also eliminates the use of copper wires soldered to the segments for making connections, which, to say the least, is far from being dependable.

Front of Slate Piece used in controller, carrying the various segments for starting and stopping the motor and controlling the speeds. In order to obtain lubrication and reduce wear to a minimum, holes are provided in the brass segments to contain vaseline.

Back of slate piece used in controller. The electrical connections between segments are made by means of copper stampings instead of soldered wires, which construction makes poor connections absolutely impossible.

The brushes which make contact on the metal segment are heavy copper, fastened so that they are self-aligning with the surface of the segment, thus insuring a perfect contact with a minimum amount of wear. To further eliminate wear at these points the segments over which the brushes slide are drilled slightly to retain a lubricant, preferably vaseline.



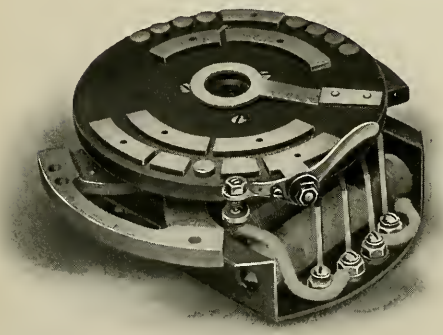
Heavy copper buttons on the end of the brushes which rub on the brass controller segments insure long life and perfect contact.

Sparking

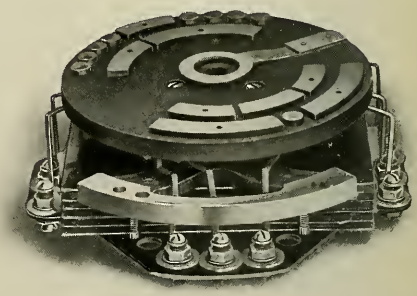
A spark is produced whenever a motor is stopped at the point where the circuit is broken and this spark is of such size and intensity as to fuse all but certain types of the very hardest metals, for each spark burns away some of the metal, eventually destroying the segment. We have overcome this objectionable feature on the alternating current controller by fitting same with a piece of platinum wire, which on account of its high fusing point is not affected by the spark, and in our direct current controller the spark is eliminated entirely by the manner in which the controller is wound.

Resistance

The construction of both the alternating and direct current controllers is such that it is impossible for any wires to become dearranged and as there are no inflammable materials used it is absolutely fire-proof and complies with all rules of the fire underwriters.

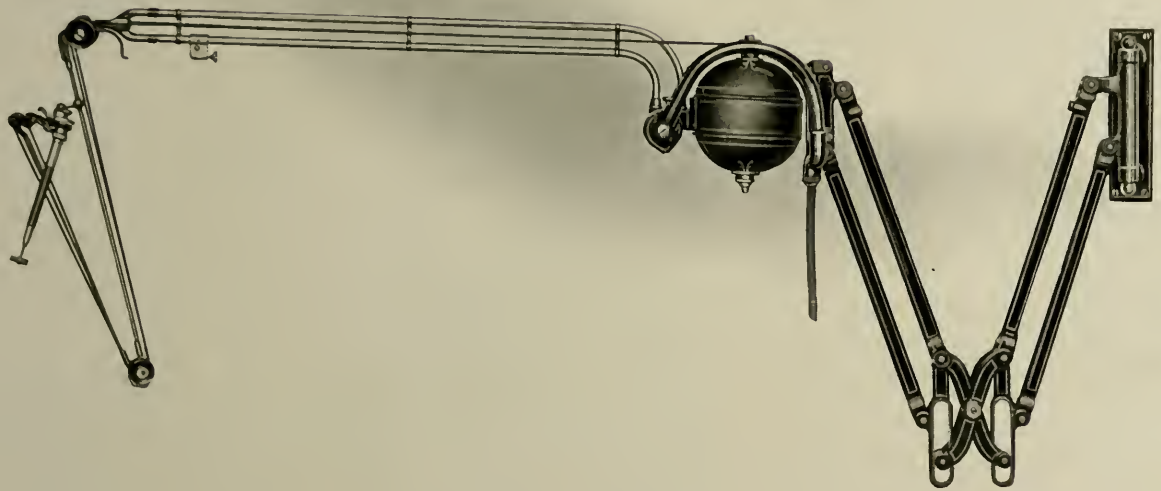


ALTERNATING CURRENT



DIRECT CURRENT

The construction of the circuit breaking lever and the resistance and slate contact plates, in both alternating and direct current controllers, insures maximum service with minimum trouble. Metal strips are used exclusively for making the necessary connections instead of wires and the parts as a whole can be taken out of the controller case by simply removing four screws.



All Cord Type

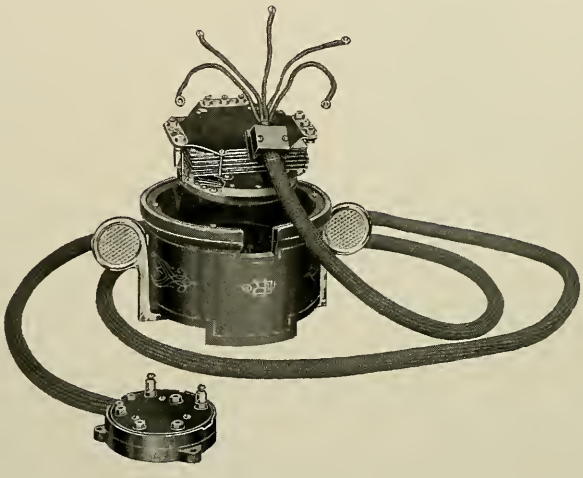
IT is perfectly poised and evenly balanced and runs practically noiseless.

Dustproof

The controller is absolutely dust and lint proof and no foreign matter of any kind can possibly enter to interfere with its proper working.

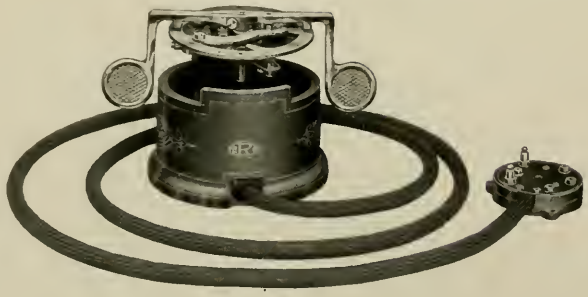
Floor Cord

Being subject to unusually hard usage, our floor cords are constructed to give maximum wear, are protected by a very heavy insulation, which will comply with all fire underwriters rules and in addition are covered with rubber as a protection from moisture and finally wrapped



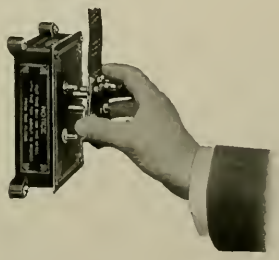
with linen braiding. All connections are numbered, making it an easy matter to put on a new cord when necessary. The special metal contacts insure perfect connections.

The design of our foot controller is such that the number of wires in the floor cord or cable is but four in the alternating current and five in the direct current controllers or about one-half the number found in controllers of other manufacturers, thus decreasing the opportunity for trouble through broken wires.

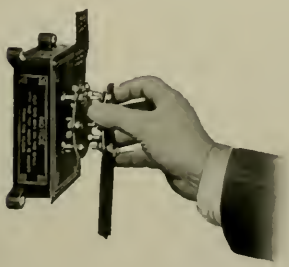


It is unnecessary to disturb any connections to remove the controller lever inside plate and contact brushes from the controller case for by removing four screws same can be lifted out to renew the lubrication on the speed controlling segments which should preferably be done once a year. Dowel pins are provided, making it impossible to replace parts incorrectly.

Wall Box

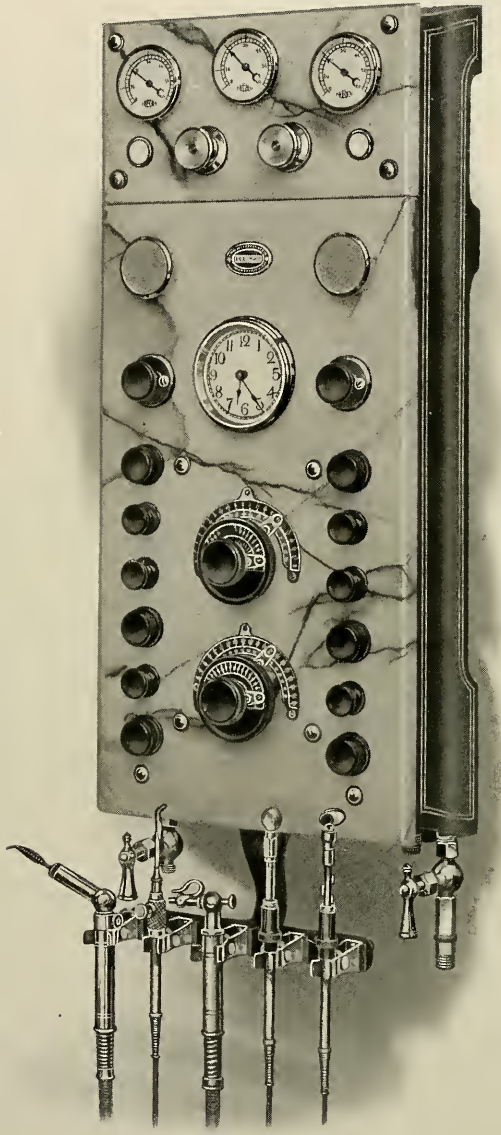


The simplified construction of our wall box eliminates the necessity of screws in putting the connection plates together. These plates simply slip over one another as shown in the illustrations on this page and when the cover is in place it cannot come apart. All parts are of metal, except the insulation in resistance box which is mica.



Resistance box is used only in alternating current engines, none being necessary on direct current.

The Ritter Distributing Panel



A most efficient equipment that will lend tone and dignity to the appearance of any office.

The Ritter Distributing Panel

THE Ritter Distributing Panel, as its name implies, is a means for the centralization, control and distribution of electricity and compressed air in their application to dentistry.

It is constructed with the usual Ritter thoroughness and high quality of materials, and the careful attention given to every detail of manufacture results in a most efficient equipment that will lend tone and dignity to the appearance of any operating room.

The distributing panel consists of a metal frame, finished in enamel, with a Mexican Onyx front, upon which are mounted a clock and various gauges and switches, by which the panel is operated.

Economy

Ritter Panels when no instruments are in use consume practically no electricity, and the hot air syringe and electrical instruments are very economical to operate, as they consume but a few cents worth of electricity per day even though they are in use continuously.

Air Panel

The air section of the panel is located at the top and is equipped with three pressure gauges and two regulators for regulating and distributing the air to the hot air syringe and air cut-off. The hand wheels on the air regulators are large and have knurled edges, thus making

them easy to operate. The valves are needle pointed with tapering seats and ground and seated with infinite care to insure positive closing and the elimination of leaks.

An air filter is provided in the air supply line by means of which the air is cleansed before being delivered to the outlet, thus insuring dry, clean air for delivery into the patient's mouth. A drain cock, easily opened, at the bottom of the filter makes it convenient to drain off any condensation of moisture.

Air Filter

Electric Panel

The electrical section of the panel is located at the bottom and has many desirable and unique features, all of which have been arranged for adaptability, efficiency, convenience and safety, the latter being of special importance.

Safety

The main line supply current is reduced to the proper voltage for the instrument or low voltage circuits, by means of a regulating transformer, the principle of design of which thoroughly insulates the low voltage circuits from the main line supply current and renders it absolutely impossible for either the patient or operator to receive an electrical shock. The low voltage current in the instrument circuit is produced by magnetic induction (by means of the above mentioned transformer) and there is no metallic electrical connection between the instrument circuit and the supply circuit.

This method of construction is used in the Ritter Distributing Panel as a matter of safety to both the patient and operator, for we believe it is necessary that instru-

ments for use in the mouth of a patient or in the hands of the operator should be connected with a low voltage current or circuit from which it is absolutely impossible to receive an electric shock, and this design is the only one providing this safety.

Fuses

The fuses are covered with caps made of special insulating material, held in place by an arrangement of our own design which insures proper connection even though there is a pronounced variation in their lengths.

Switches

A master switch is provided in the upper left side of the panel to control the main line current to the panel and a similar switch on the upper right side to control current to transformer. Three branch circuit switches are also provided on each side of the panel to control the current outlet to engine, compressor, fan, operating light, etc., connections of which are made inside the panel and each circuit is provided with an individual fuse, easily replaceable. The switches are of the "push and pull" design, and can be furnished either in the same insulating material as the fuse caps or in glass.

Pilot Lights

A pilot light is connected in both the main line and transformer circuits to indicate when the current is flowing. These are built flush with the face of the panel and are provided with ground glass crystals, providing a soft pleasing light, without glare.

Clock

The Ritter Panel is equipped with a high grade clock, which is so arranged and connected with the master switch that it automatically turns off the current at any

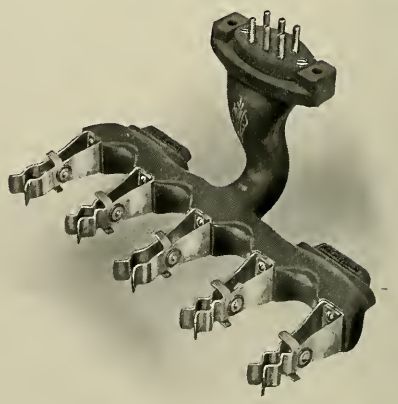
desired hour, which eliminates the possibility of the current remaining on when leaving the office for the night. It is plain, yet of pleasing appearance and provides a conveniently located time piece in the operating room.

Regulators for Low Voltage Circuits

Four regulators are provided for controlling the current to the electrical instruments, each one provided with a locking device so that it can be set at any desired point. The amount of current furnished each individual instrument is thus controlled or regulated and after the desired amount of current is obtained and the regulator locked, there is no necessity for the operator to adjust or change the current each time the instrument is used. The benefits of fixed regulators are readily apparent and the locking feature prevents accidental moving of the regulator.

Automatic Instrument Holder

The automatic instrument holder is located immediately below the panel, with wire connections made through the interior of the rack, eliminating all exposed wires and is provided with five spring supporting clips, four for the electrically controlled instruments and one for the air cut-off. The application of the current to the electrical instruments is controlled by the simple movement of taking them from and replacing them in the spring supporting clips, which procedure automatically opens or closes the electric circuit.



Call Bell Buttons

Two pearl push buttons are provided on the face of the panel for call bell circuits to laboratory, business office or any other desired location.

Air Connections

A needle point valve is placed at the lower right corner of the panel so that supply from air tank can be shut off at this point if desired.

Universal Type

The Ritter Distributing Panel is universal in type and can be used on all electrical currents. When the supply or central current is direct, it is necessary to install a rotary converter to convert the direct to alternating current for the low voltage instruments.

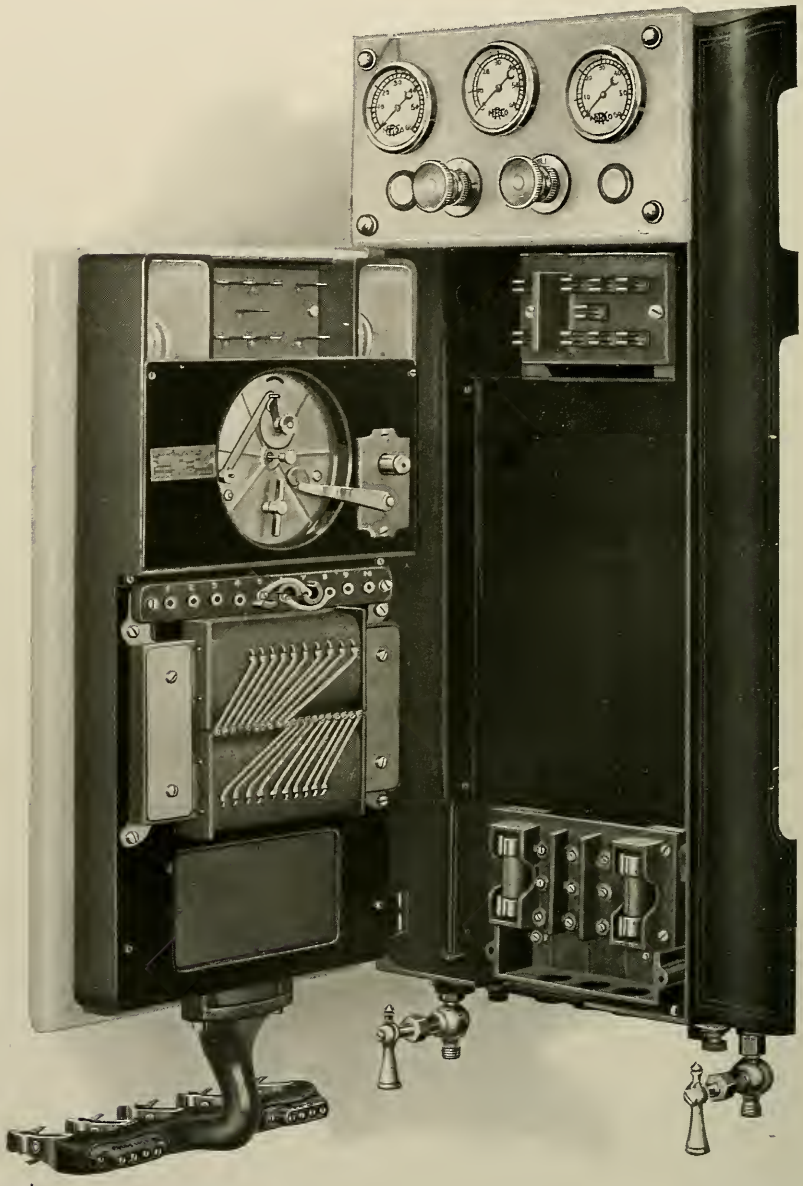
Ritter Rotary Converter

This is a small motor which can be installed in the laboratory or other suitable place, which takes in direct current at one side and delivers alternating current from the other. It is built with the usual Ritter care and attention to all details, consumes but very little current and with ordinary care and attention should operate indefinitely.

Interior

The electrical portion of the panel is mounted on a swinging iron frame which opens to permit the interior to be exposed for inspection. When the panel is open a knife switch automatically breaks the circuit thereby

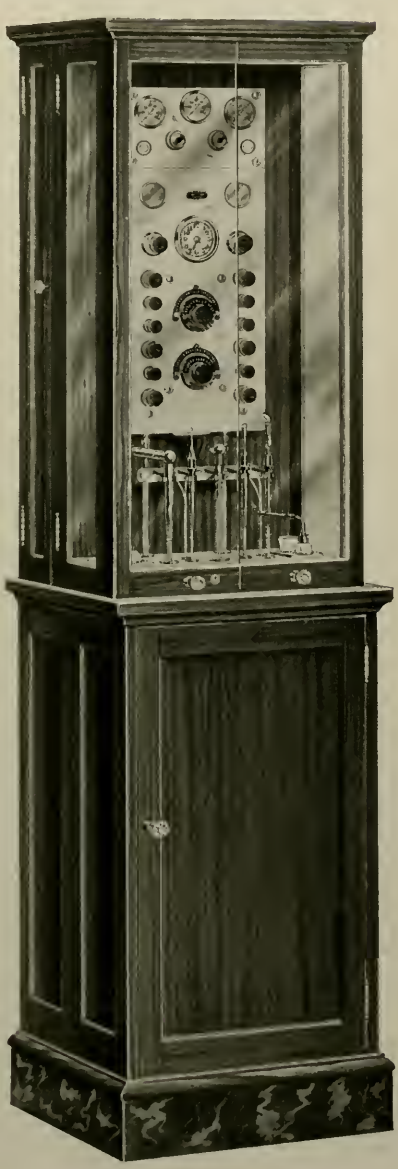
The Ritter Distributing Panel



THE construction of the interior of the panel clearly indicates the careful way in which each detail has been worked out to provide for efficiency, practicability, convenience and economy.

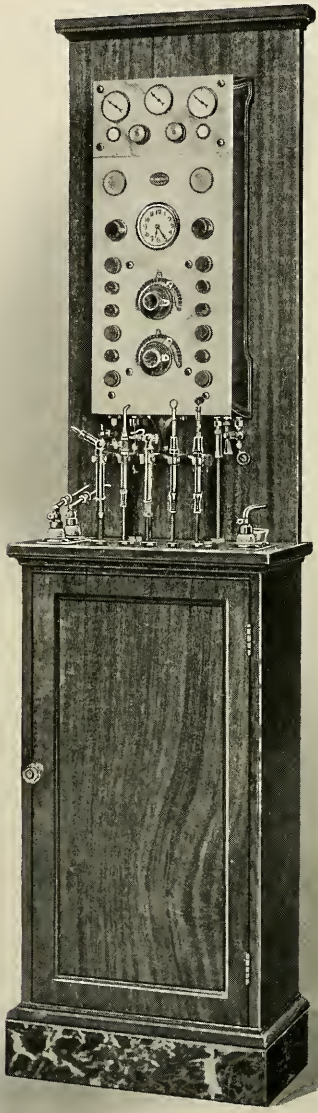
The Ritter Distributing Panel

MOUNTED on
No. 8 Cabinet



MOUNTED on
No. 9 Cabinet

The Ritter Distributing Panel



MOUNTED on No. 7 Cabinet

eliminating any opportunity or possibility of receiving a shock by coming into contact with the wiring of the interior.

All wiring is thoroughly insulated and arranged so as to be readily accessible.

A connection bar is provided whereby, by means of metal connecting links, panel may be instantly adapted for use on current of any voltage or frequency.

The various insulating blocks are made from the best material obtainable for the purpose. All metal parts are accurately machined and finished, and are interchangeable.

The transformer is constructed in accordance with the most approved electrical practice and is made entirely in our factory.

Distributing Panel Cabinets

Ritter Distributing Panels can be mounted directly on the walls of operating rooms or on panels or boards of wood or metal. The ideal method, however, is to mount same on cabinets, like or similar to the illustrations shown on the following pages, for the reason that it makes the equipment more compact, adds to its efficiency, keeps the instruments together and in their proper place and when not in use the cords and tubing are concealed in base of cabinet.

Cabinets of this style can be placed in a convenient place or position in the operating room, and as they can be obtained in various woods and finishes, it is possible to match interior decorations and equipment, thus adding character and tone to the entire room.

One or two Ritter Spray Bottle Warmers can be incorporated in these cabinets, making the outfit complete in every detail.

A simple, yet efficient, take-up device has been perfected whereby the instruments, when returned to the instrument holder after having been in use are automatically drawn into the base of the cabinet, thereby concealing all cords and tubing and protecting them from dust and dirt. This device also adds to the ease of manipulation of instruments attached thereto.

The cabinets illustrated on pages 45-46 are known as the Nos. 7, 8 and 9 and are made by the American Cabinet Co. of Two Rivers, Wis., and Rahway, N. J. The Nos. 8 and 9 have glass doors inclosing the panel and the No. 9 is arranged to accommodate a Ritter Air Compressor Unit in the base. Full particulars regarding these cabinets can be obtained from and orders placed with any dental supply depot or the American Cabinet Company.

MODERN equipment coupled with advanced operative technique offers to the dental practitioner the "open sesame" to a broader field of usefulness in the care of the oral cavity, that gateway to the gastro-intestinal tract through which must pass the enemies to both health and comfort.

The Ritter Hot Air Syringe with Rapid Heating Element

A most efficient instrument, scientifically constructed, light in weight and easily held in the hand. The angle of the nozzle allows for ready access to the interior of patient's mouth without obstructing the operator's vision.

Rapid Heating Element

The unique principle used in the construction of the heating element is such that the air circulates back and forth several times before leaving the tip of the nozzle, which insures the air being heated more rapidly than in syringes where air passes heating element but once. The heating element can be easily removed and replaced in case of necessity.

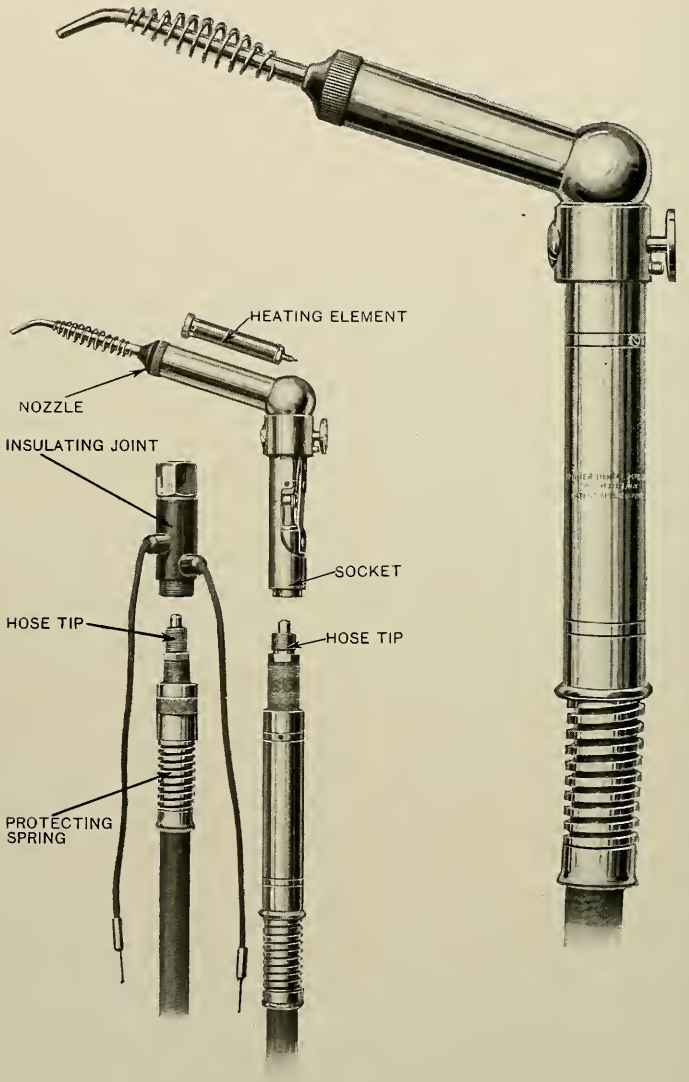
Safety

The exterior is thoroughly insulated eliminating all opportunity of the operator's burning himself or patient, even though air be applied continuously and at its maximum heat. The graduated coil of wire covering the nozzle gives protection to the patient's lips. There is absolutely no danger of an electrical shock to either patient or operator.

Operation

A slight pressure of the thumb on a push button operates the hot air syringe. If cold air is wanted, the button is pressed but half way down. Additional pressure closes the electrical connection through the heating element and in a few seconds time the desired temperature is obtained and same can be maintained for an indefinite period.

Ritter Hot Air Syringe



Protecting Spring

A protecting spring is provided for the tubing at the instrument connection, which prevents the tubing breaking or cracking at that point by reason of same being bent at a sharp angle. This insures longer life to the tubing and eliminates the possibility of the air being shut off wholly or in part as often occurs when tubing is bent at a sharp angle when in operation. The tubing can be readily replaced in a few moments in case of necessity, as both ends of same are provided with threaded connections.

The Ritter Air Cut-Off and Switch Handles

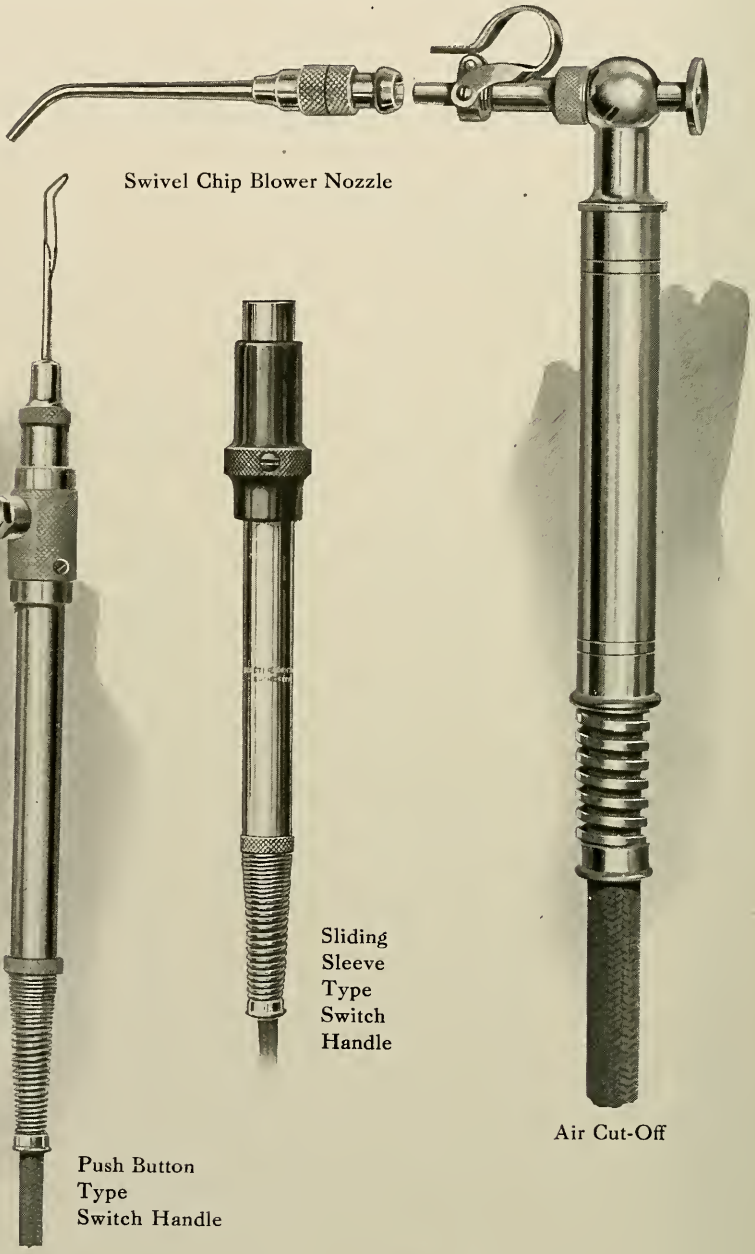
The construction of both the hot air syringe and switch handles is such that neither the patient nor operator is in danger at any time of an electrical shock or other discomfort.

Protecting springs are provided at the handle connections to prevent the tubing and wiring from breaking or cracking at that point by reason of same being bent at a sharp angle.

The tubing of the air cut-off can be readily replaced in a few moments in case of necessity as both ends are provided with threaded connections. Both the air cut-off and switch handles are balanced and proportioned so they can be held in the hand without inconvenience and used for long periods without causing fatigue.

The push button type switch handle is intended for use with the cautery, which with the transformer winding in the Ritter Distributing Panels and Unit Equipments makes it possible for these instruments to become

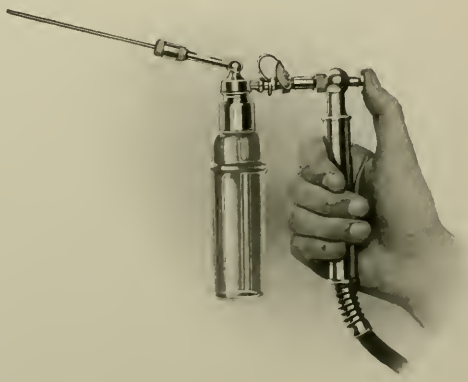
Ritter Air Cut-Off and Switch Handles



more generally used than heretofore as this construction permits the operator to turn on the current by pushing the button switch, after the cautery is in the mouth or after having passed the patient's vision, thereby causing no alarm to the patient as would be the case if he observed the white hot cautery point entering his mouth.

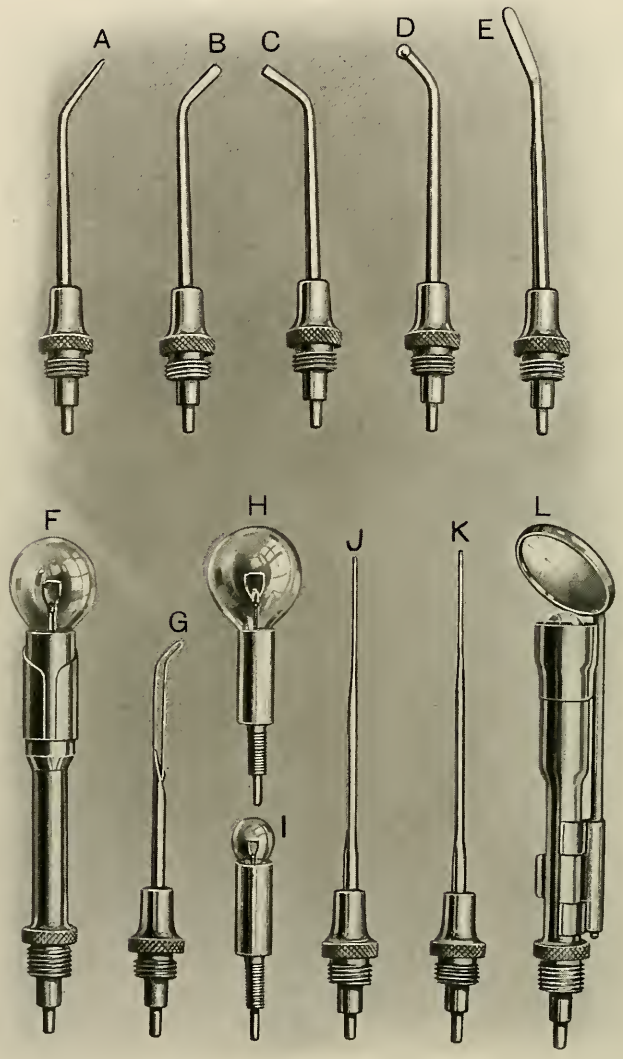
. The sliding sleeve switch handle is intended for the other electrical instruments in which the current is not turned on and off as often as the cautery.

A patented spring clip on the Ritter Air Cut-off prevents spray bottles from becoming accidentally detached or disconnected and makes it unnecessary for the operator to hold bottles in place with the consequent discomfort and inconvenience, especially when solutions are used at the higher temperatures.



THE rare delight that is experienced by a practitioner whose offices are equipped with modern devices that make for efficiency, as well as safety and comfort to both himself and patients, is ample return for their cost.

Ritter Electrical Instruments
For Distributing Panels and Unit Equipments



Columbia Distributing Panel Instruments

A—Bleacher Point.
B—Gutta Percha Excavator (Left).
C—Gutta Percha Excavator (Right).
D—Ball Point.
E—Wax Spatula.
F—Antrum Lamp Holder with Mirror.
G—Cautery.
H—Bulb for Antrum Lamp.
I—Bulb for Examination Lamp.
J—Root Canal Drier.
K—Root Canal Drier.
L—Examination Lamp, complete.

Electrical Instruments for Ritter Distributing Panel and Unit Equipment

Cautery

The uses of the cautery are innumerable, although it is of especial value in the removal of tissue, puncturing of abscesses and the arresting of hemorrhages, for it is painless and its use leaves no deleterious after effects.

Examination Lamp

Extreme brilliancy without excessive heat is made possible in the Ritter lamp by the use of a special filament. It can be used for operations, diagnosing and similar work the same as the standard hand mirror, without giving any discomfort to the patient or inconvenience to the operator.

Antrum Lamp

Especially desirable for transillumination, and for diagnostic work of all kinds, where a confined spot of light of maximum brilliancy is desired. The bulb of the Ritter Antrum Lamp is of special shape with a new type filament which gives maximum brilliancy with minimum heat.

Bleacher Point

Extensively used for bleaching the teeth and for working wax inlays.

Root Canal Drier

Drier points can be inserted in the canal column and then heated or may be heated beforehand and then inserted, after which the temperature can be regulated as desired. The points of the Ritter Root Canal Driers are made of silver, which is an excellent conductor of heat and not subject to corrosion.

Wax Spatula

Used extensively for preparing and trimming wax inlays for casting, and for removing crowns set with gutta percha and other tough or hard mediums.

Gutta Percha Excavators

A pair of excavators, one right and one left, will be found very useful for the removal of gutta percha fillings as well as for the insertion of the same material, which requires the maintenance of a uniform temperature for proper application.

Ball Point

This handy little instrument is especially desirable when heated to the higher temperatures for softening fillings so that they can be readily removed.

The construction of the heating elements in the Ritter Bleacher, Canal Drier, Wax Spatula, Gutta Percha Excavator and Ball Point are such that any desired temperature can be obtained almost instantly and can be maintained for any length of time at the will of the operator, and are made so that they will give continued good service for an indefinite period with ordinary care and attention.

Ritter Air Filter

RITTER air filters will be found very essential additions to air lines not equipped with air filters or purifiers, for they automatically cleanse the air that is being forced into the patient's mouth through the hot air syringe and spray bottles.

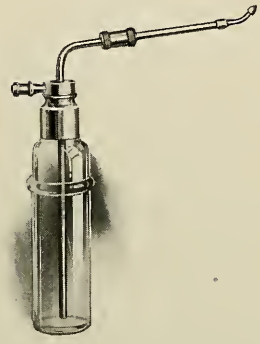
This is especially true in the larger cities or in manufacturing districts where the atmosphere is certain to be contaminated with soot and dirt and the humidity varies to a great extent. The installation of a Ritter Air Filter will remove all foreign matter, making it possible to have clean air of a uniform humidity at all times.

These filters can be readily attached to any air line or on a compressor tank; they require practically no attention; cost nothing to operate; will eliminate dirt interfering with the air syringe and spray bottles and keep the piping and fittings clean.

Ritter Distributing Panels and Unit Equipments are regularly equipped with filters of this type, but in extreme cases where there is an excess amount of dust and soot in the air or along the seashore where the air is heavily charged with moisture, we advocate the use of one of our large air filters (preferably attached to air tank) in addition to the small filter supplied with the panel and unit.

Ritter Spray Bottles

A combination of spray bottles, styles A, B and C, together with a tumbler or water glass, comprises a complete set for use in either Ritter Warmers or those of other manufacture. ⁄ Both the bottles and tips can be readily sterilized by boiling in hot water, or in the case of the metal tips by passing through a flame, although we recommend boiling in hot water or antiseptic solution.

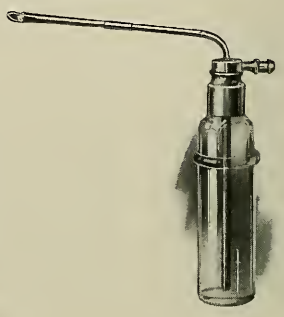


Style A

The spray tube revolves, permitting spraying at any desired angle. The extension is curved and the tip being acorn shape makes it especially desirable for spraying solutions of oil, water or alcohol between the teeth and gums and into pus pockets. Aromatic or antiseptic solutions can be applied to the mouth in the form of a very fine, soft spray and without any possibility of irritation to the gums.

Style B

Equipped with an adjustable point making it possible to render a spray up, down or forward. ⁄ It is equally suitable for oil, water or alcoholic solutions as well as for cleansing and antiseptic preparations and can be used when so desired for spraying from any bottle or open vessel. ⁄ The spray given is not as soft or fine as from the Style A bottle, but is very essential and desirable for any kind of work where added force or a large spray is necessary.



Style C

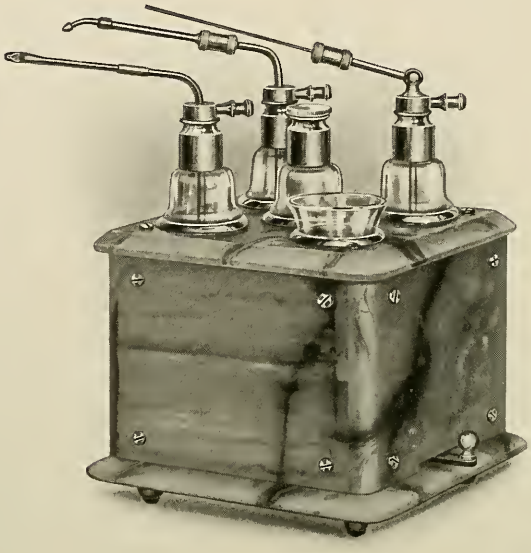
This style produces a fine stream instead of a spray or mist, is supplied with a gold tip which can be bent to any desired angle, and is used extensively in pyorrhea and work of a similar character.

Tumbler

Can be furnished in either clear or opal glass, the former being used, as a rule, for mouth washes and the latter for antiseptic solutions for dental instruments. They are made of special annealed glass that will withstand changes in temperature and fit snugly the openings in the spray warmer tops.

INSTRUMENTS and equipment of accuracy and precision in the hands of the average intelligent operator are productive of better results than the most skillful operator could accomplish with an inferior equipment.

The Ritter Spray Bottle Warmer



Dimensions: Base 6 x 6 inches

THIS attractive apparatus not only provides a convenient method of keeping aromatic and antiseptic solutions at the desired temperature, but it is an entirely sanitary method of introducing liquids into the mouth, contrasting greatly with the old type hand syringe.

It is made of selected Mexican Onyx, with polished nickel trimmings and fittings, with a capacity of five spray bottles or tumblers.

The three point heat regulator, connected with two electric bulbs, makes it possible to maintain the contents of the spray bottles at practically any desired temperature and at the same time furnishing sufficient illumination to display the beauty of the Onyx.

The base is fitted with four rubber cushioned feet and is removable, making it a simple matter to replace electric bulbs when necessary. Complete outfit includes one each styles A, B and C Ritter Spray bottles, complete with tips, one spray bottle with screw cap, one clear glass tumbler, two electric bulbs and seven feet of silk extension cord with socket plug attached.

The Ritter Unit Equipment

THE resources and experience of our organization, coupled with valued advice from members of the profession, made possible the perfection of the Ritter Unit Equipment, an operating outfit in keeping with the marked progress of dentistry.

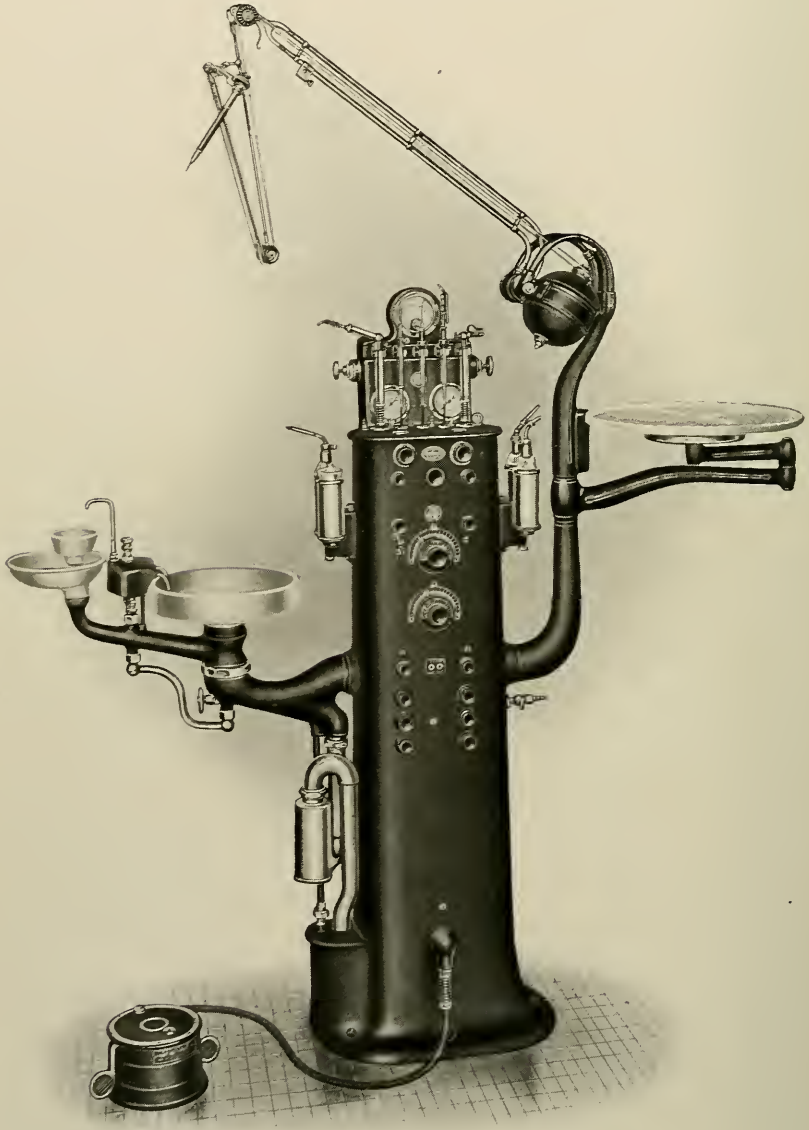
The complete operating equipment, including an engine, fountain cuspidor, bracket table, spray bottle warmer, compressed air appliances, ionization outfit and a complete set of electrical instruments, is placed in a limited amount of space, within immediate reach of the operator, yet without the sacrifice of practicability, convenience or efficiency.

The unit equipment will be found equally practical whether the operator has an assistant or not, as ample provision has been made for an assistant to work at the left of the chair, within instant reach of the various electrical instruments, spray bottles, drinking water, cuspidor, engine and bracket table without interfering in any way with the operator's work, or these same appliances can be readily reached and used by the operator without the necessity of changing his position.

Pedestal

A metal pedestal, beautifully finished, contains the various switches, controls, indicators, instruments, etc., and all connections to same, including electrical, gas, water and air, are made preferably under the floor to eliminate all tubes, pipes and cords from view.

The Ritter Unit Equipment



Front View

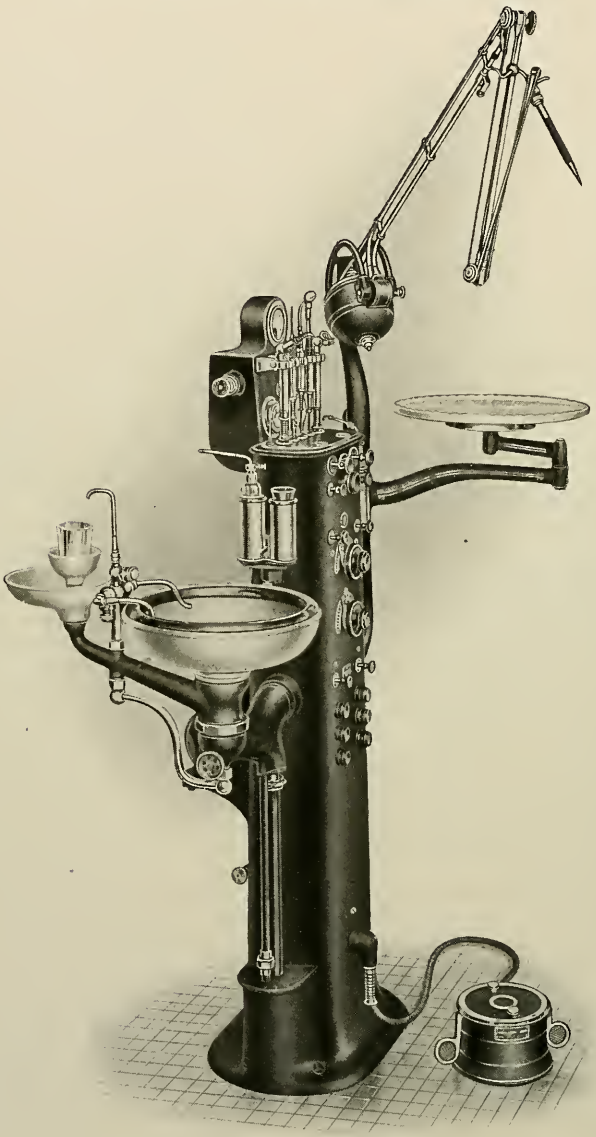
EQUIPPED with Clark No. 55 Single Bowl Cuspidor, Monarch Trap and Bosworth Table.

The Ritter Unit Equipment

Front View

EQUIPPED with White Porcelain Sub-Base, Clark No. 65 Double Bowl Cuspidor and Bosworth Table.

The Ritter Unit Equipment



Side View

EQUIPPED with Clark No. 65 Double Bowl Cuspidor and Bosworth Table.

Engine

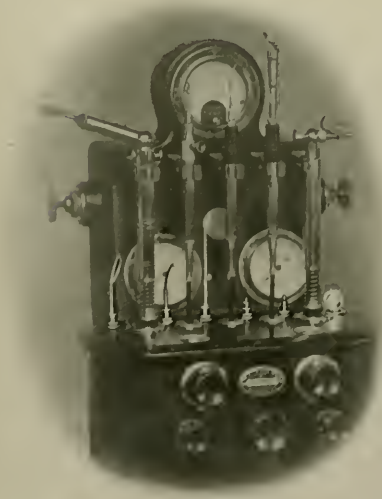
A Model "C" Ritter Engine is supported on a swinging arm in correct position for operator, with ample extension, both vertical and horizontal, to meet any condition that might arise. For detailed description of the Model "C" Engine refer to pages 22 to 37.

Cuspidor

Single or double bowl cuspidors of the various manufacturers can be mounted on a supporting arm at the correct height to accommodate patients of any size irrespective of position of chair.

Electric Instruments and Air Appliances

Electric instruments and air appliances are complete in every detail, in fact, the many exclusive features of The Ritter Distributing Panel have been incorporated in the Unit Equipment, including the improved transformer, automatic instrument holder, automatic take-up device for cords and tubes, which return automatically and disappear in pedestal when instruments are returned to holders. Readily accessible receptacles are provided for extra electric instruments. For detailed description of electrical and compressed air instruments refer to pages 49 to 56.

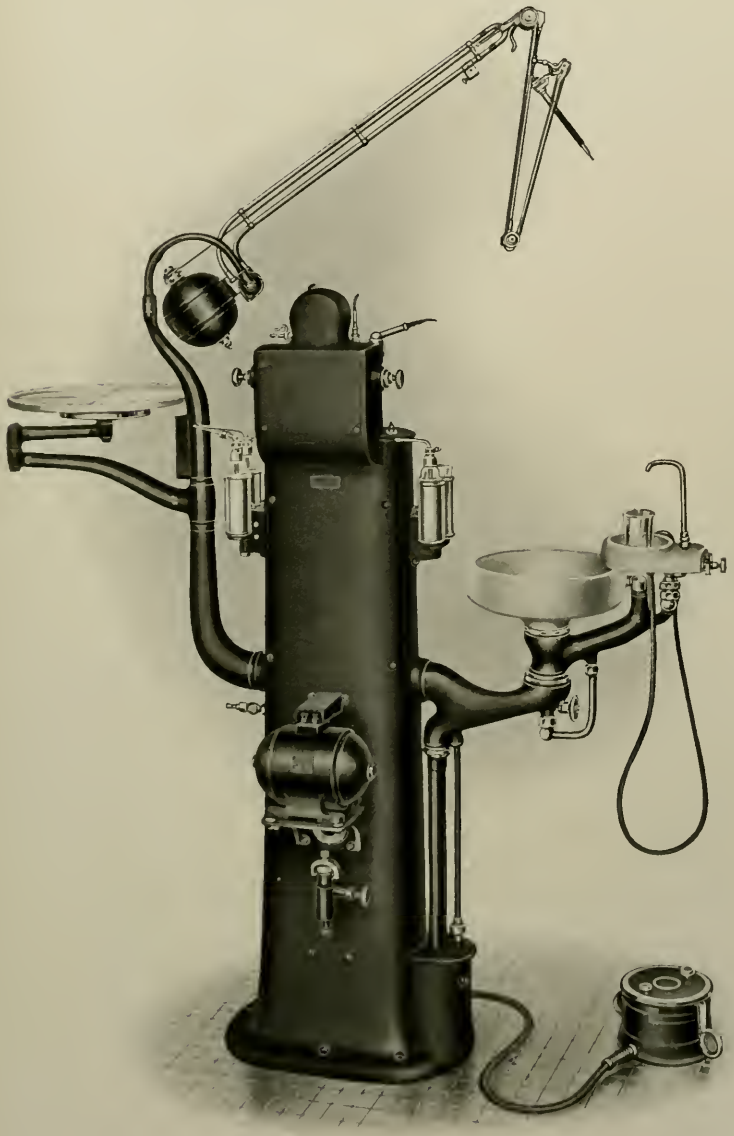


Receptacles are provided for the spare or extra electrical instruments so that they are in a convenient place for immediate use.

The Ritter Unit Equipment

WILL be found equally as practical and efficient whether the operator has an assistant or not, as ample provision has been made for an assistant to work at the left of the chair within instant reach of the various electrical instruments and other appliances, or the same can be readily reached and used by the operator without the necessity of change of position.

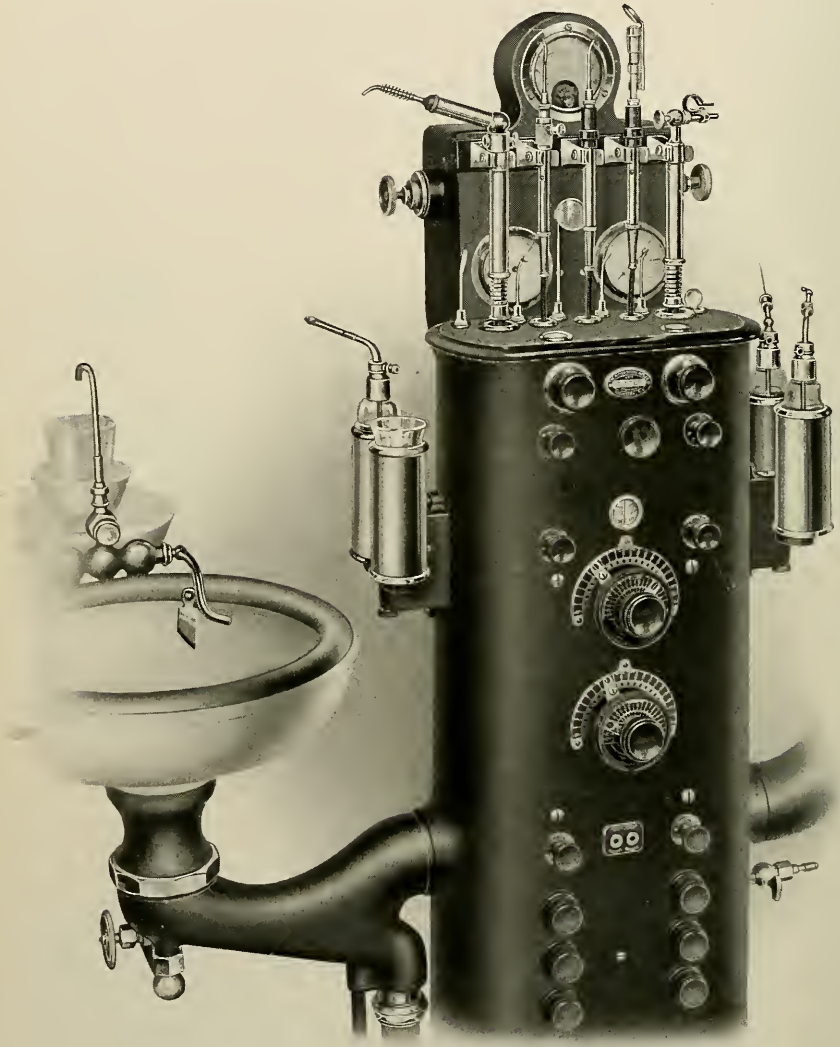
The Ritter Unit Equipment



Rear View

EQUIPPED with Weber No. 45 Single Bowl Cuspidor and Bosworth Table.

The Ritter Unit Equipment



Front View

SHOWING cuspidor, electric and air instruments and regulators, spray warmers and bottles, switches, gas cock, fuses, ionization socket terminal, ionization regulator and dial, air gauges for hot air syringe and air cut-off, call bell push buttons, etc., all in a limited amount of space within immediate reach of the operator, yet without the sacrifice of practicability, convenience or efficiency.

Ionization Outfit

A complete ionization outfit is a component of the Unit. A Motor Generator or Motor Transformer is mounted on the back of the pedestal to supply the correct current.

A milli-ampere meter at the top of the pedestal is in plain view of the operator, below which is a regulator with graduated dial; the connection cords leading to patient are readily attached to a convenient socket in the face of the pedestal. The ionization outfit also provides a very safe means for testing the vitality of pulps of teeth. For detailed description of the Ionization Equipment refer to pages 79 to 85.

Waste and Water Supply Pipes

Waste and water supply pipes are located mainly on the outside of the pedestal and provide no chance of contact or interference with the electric wiring or mechanism contained within the pedestal.

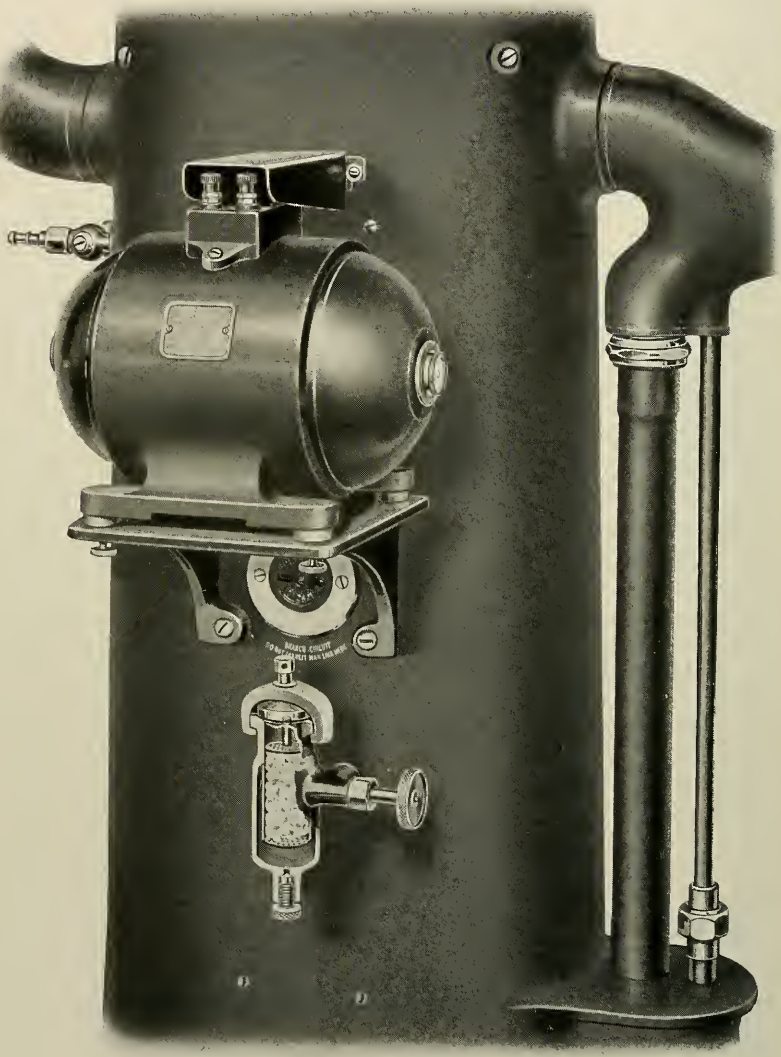
Specifications

PEDESTAL—Metal casting, beautifully finished in enamel with nickel trimmings.

ENGINE—Model "C" Ritter all cord or cable type, with swivel motor, suspended elbow arm, belt adjuster, portable controller, giving four speeds forward and reverse, fitted with removable plug to pedestal. Engine can be readily removed without detaching wires or connections.

CUSPIDOR—Unique construction of the supporting arm (containing waste water passage) insures sufficient drainage for both single and double bowl cuspidors and

The Ritter Unit Equipment



Rear View

SHOWING gas cock, ionization generator, full voltage branch circuit plug and sectional view of air filter.

is arranged to take all models of single and double bowl cuspidors manufactured by A. C. Clark & Co. and the Weber Dental Mfg. Co., which concerns furnish their cuspidors, built with all fittings ready to attach to the Unit.

BRACKET TABLES—Bracket tables of any manufacture can be attached to the double swinging bracket table arms.

IONIZATION EQUIPMENT—A complete outfit, including Motor Transformer or Motor Generator, milliampere meter, current regulator and complete set of electrodes and needles.

COMPRESSED AIR EQUIPMENT—Air filter and separator attached to pedestal. Two Air Regulators; Two Air Gauges; One Hot Air Syringe; One Air Cut-off; Four Spray Bottles (one each style A, B and C, complete with tips); One Clear Glass Tumbler; Four Spray Bottle Warmers with three point Heat Regulators controlled by switches.

ELECTRICAL EQUIPMENT — Automatic Instrument Holder; One Examination Lamp; Two Gutta Percha Excavators; Two Root Canal Driers; One Ball Point; One Cautery; One Wax Spatula; Three Switch Handles for use with above instruments; one master switch for high voltage circuit; one master switch for low voltage (instrument) circuit; Six switches for controlling branch circuits to engine, Ionization Outfit, Lathe, Air Compressor, etc.; Six Fuse Receptacles with insulated caps; Four Regulators with locking devices controlling low voltage instruments; One main line Pilot Lamp, Two Call Bell Buttons.

The Ritter Automatic Air Compressor

WITH special twenty gallon tank, makes a very efficient outfit for several operators who are drawing their supply of air from the same source or for use in laboratories where considerable soldering, melting and casting is done.

The Ritter Automatic Air Compressor

THE value of and the use of compressed air or pneumatics in operative dentistry has shown a marked increase during the past few years and this coupled with the many uses to which air under pressure can be used in the laboratory, created a demand for a high grade air compressor outfit that would work automatically. We believe that the Ritter Automatic Air Compressor has answered the purpose, for hundreds of them have been installed and are in daily use (some under the most trying conditions) in all parts of the world.

The Ritter Compressor is built along strictly modern lines and has many unique features embodied in its construction which coupled with the high quality of Ritter workmanship and materials results in a finished product that can be relied upon to give continued good service and entire satisfaction.

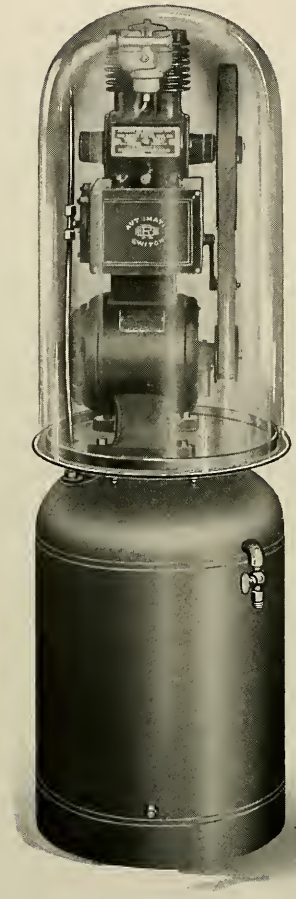
It is absolutely automatic in its operation, maintaining any desired pressure without attention and can be used in connection with either The Ritter Unit Equipment, The Ritter Distributing Panel, or any type of panel or switch board. It may also be used in the laboratory without a panel, unit or switch board connection.

Pump

A two cylinder pump is used, providing double the pumping capacity of a single cylinder, since each turn of the drive wheel compresses air in both cylinders, thus

The Ritter Air Compressor

WITH METAL COVER



WITH GLASS HOOD

WITH standard eight gallon tank. Metal cover is regularly furnished to enclose the motor and pump, or a glass hood can be obtained in place of the metal cover, which exposes to view all running parts of the compressor.

the desired pressure is thereby secured in half the time. The consumption of electric current by our compressor is but slightly more than by single cylinder compressors and its efficiency is demonstrated by the fact that it will fill an eight gallon tank to 40 pounds pressure in 3½ minutes.

To eliminate excessive heat (all compressors generate heat when in operation), the cylinders are cooled and kept at the proper operating temperature by means of radiating flanges exposed to the air. The cylinders and pistons are accurately ground; pistons are fitted with three expansion rings to insure perfect compression. The connecting rods are of bronze and equipped with take-up or adjustment devices so that wear can be readily taken up when necessary. The main shaft is of drop forged steel, accurately ground to fit the bearings and perfectly aligned to insure true running. The working parts of the pump are all enclosed and the pump casting is practically all in one piece, eliminating leakage of oil.

Valves

The valves, both intake and exhaust, are of the quick acting type and are noiseless. They are of special metal, carefully ground and seated, to insure long wear and eliminate air leakage. The ports are large in proportion to the piston area, insuring rapid compression.

Filter

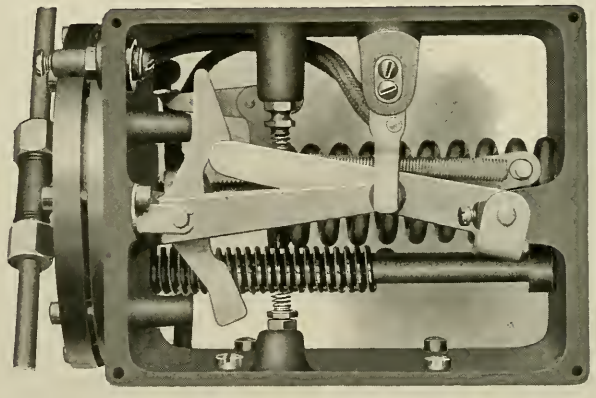
A filter is provided at the air in-take to prevent dust or other foreign matter entering the cylinders. The filtering medium is absorbent cotton, placed in a chamber in the filter, which can be opened instantly for the purpose of renewing the cotton.

Oiling System

The compressor pump is oiled by means of the Splash System which insures thorough lubrication, for each connecting rod is provided with a dipper at the bottom which dips into the oil as the shaft revolves and in rising splashes oil throughout the chamber and all working parts. A sight oil feed is provided for convenience, on end of shaft.

Automatic Switch

Air may be maintained in the reservoir tank at any desired pressure by means of an automatic switch which is constructed to trip the lever and break the electrical connection, thus stopping the motor and the compression



of air when the maximum desired pressure is reached. When the pressure in the tank falls to a predetermined amount the electrical connection is again automatically established and maintained until the pressure reaches the maximum.

The switch lever is operated by pressure from a diaphragm, sufficiently strong to insure positive operation and quick action in making and breaking the circuit thereby eliminating the possibility of burning the contact

blades. The diaphragm is made of metal and can be readily replaced if it should ever be necessary by simply removing a few screws in the end of the automatic switch box and without disturbing any other parts.

Motor

The compressor is operated by an electric motor of high class construction, low current consumption and is in keeping with the Ritter Standard of construction. It develops approximately one-sixth horse power and runs practically noiseless.

Drive

The drive or transmission of power from the motor to the pump is accomplished by means of a wide, flat, leather belt, running on flanged pulleys, which guide the belt and keep same from running off. A self-adjusting idler pulley insures proper tension on the belt at all times.

Tank

The tanks furnished with our compressors are of seamless, drawn steel, having a capacity of eight gallons, finished in any of our standard enamel finishes. A metal cover is provided to enclose the motor and pump. This cover rests on and is finished to match the air tank. A glass hood can be furnished in place of the metal cover, which exposes to view all running parts of the compressor. Twenty gallon tanks can be furnished in place of the 8 gallon size.

Fittings

All fittings for the air line are our metal to metal cone seat design which insures leak proof joints.

The Ritter Tooth Tester

The outfit consists of a transformer, pencil electrode, cheek clamp electrode and connecting wires, providing a rapid and effective means for determining the vitality of pulps of teeth.

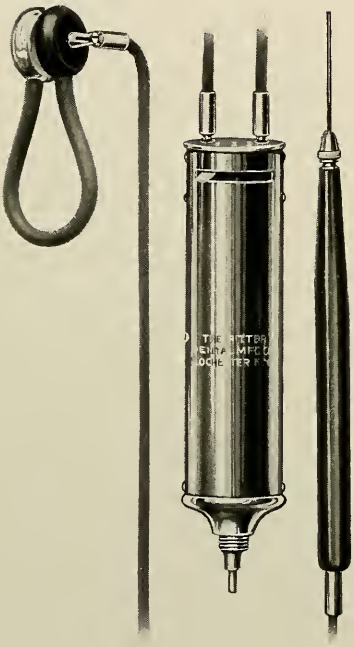


Illustration about $\frac{1}{3}$ actual size

It can be used only when connected to the Ritter Distributing Panel by attaching the transformer to one of the instrument switch handles, which can then be placed on the bracket table or any other convenient place.

The cheek electrode can be instantly adjusted and causes no inconvenience to the patient. The pencil electrode point is fitted with a wire to be applied to the tooth to be tested.

A three point switch in addition to the twenty point regulator on the Ritter Distributing Panel gives a range of sixty different degrees of current making it practically certain that the pulp of the tooth to be tested is devitalized if the patient fails to experience a tingling sensation at one of these sixty points or degrees.

The complete outfit weighs but a few ounces, is compact, easily handled and makes a valuable addition to any Distributing Panel outfit.

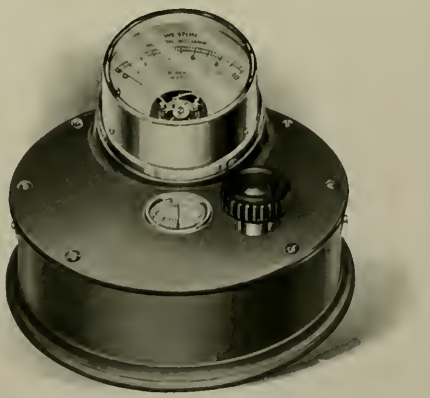
The Ritter Ionization Equipment

Electrolytic Medication

ELECTROLYTIC Medication, Electro-Sterilization, Ionic Medication, or Ionization, as it is variously called, is a comparatively new and valuable method of treatment in which drugs are introduced into the subcutaneous parts of the body by means of an electric current, and it has become a very important factor in operative dentistry, particularly in the sterilization and preparation of root canals and treatment of abscesses and other pus formations.

The theory, technic and clinical application of this interesting subject are explained in detail in a 72 page clothbound book which we are distributing gratis to members of the profession upon request.

Current Regulator



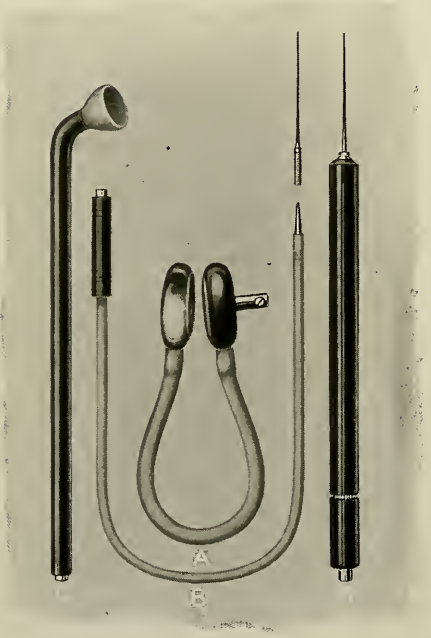
Ritter Portable Ionization Current Regulator

The function of an Ionization instrument or current regulator is to apply electric current gradually and without the slightest interruption, variation or break in the flow and to register the exact amount of current flowing. The Ritter Ionization Current Regulator was designed particularly with this object in view

and the degree of subdivision of the regulating resistance has been carried out to such an extent that the change in current strength between the divisions is not perceptible in even the most delicate operations.

The gradual application of the current is accomplished by turning a regulator button. The dial with which the regulator is equipped is a material aid in the intelligent use of the instrument. This dial is divided into an arbitrarily chosen scale and indicates the amount of resistance which is cut out of the circuit.

The current indicator is made expressly for us by the Weston Electric Instrument Company and has a range from zero to ten milli-amperes with divisions readable in 1-20 of a milli-ampere. It not only indicates the current flow but measures it accurately. A correcting device is provided whereby the needle can be adjusted so it will always rest or remain at zero when no current is flowing.



A—Cheek Electrode
B—Flexible Wire Needle Holder
C—Cup Electrode
D—Standard Needle Holder

The Regulator may be placed in any convenient location, either on a small stand beside the chair or on the bracket table, as it is compact and weighs but 2½ pounds.

Connection cords of ample length are furnished with the regulator for making connection between the generator, the portable regulator and the patient.

Electrodes

Our cheek electrode is highly recommended by operators who have used this improved type of electrode, claiming that the patient never complains of the tingling sensation [that always seems to be present with a sponge type electrode when fastened to the face or wrist], and on this account the current can be raised to the maximum ("Irritation Point") much quicker.

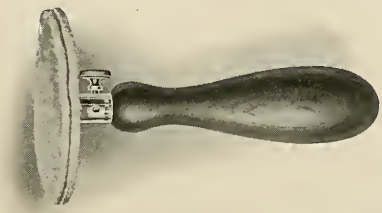
The wire needles fit into the standard needle holder which may be held in the hand of the operator, or simply laid in the mouth on the rubber dam as some operators prefer to use it. A flexible holder is also provided for the special spring socket wire needles.

Zinc wire needles both tapered and blunt, adapted to meet all conditions, are furnished. It is advisable to always use electrodes with the largest possible cross section or size in order to reduce the current density per given area; the tapered needle may be easily shortened until the correct size or diameter is obtained.

Ritter Needles for Electrolytic Medication

Only chemically pure zinc should be used for if it contains arsenic or antimony serious results will follow. Therefore ordinary commercial zinc should not be used under any circumstances. Ritter wire needles in zinc or copper; pointed, blunt or flat, packed in books of six,

and special spring socket needles in books of six may be secured from Dental Dealers.



Face Electrode

The cup electrode is used to great advantage in treating the gums to alleviate any soreness which may be present after filling root canals.

The face electrode furnished is used particularly as an active electrode in the treatment of inflamed nerve tissues of the face.

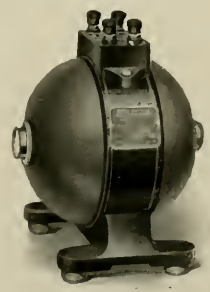
Current Generator

Only an electric current flowing constantly in one direction of not to exceed 40 volts is suitable for ionization work.

Therefore the ordinary lighting currents cannot be used without some change. If this supply current is direct of 110 or 220 volts then some means must be provided for reducing it to about 40 volts. This may be done by means of a suitable resistance, but it is not satisfactory because it leaves the patient and operator in actual contact with the main supply wires, and a ground connection at the chair through the fountain cuspidor or through other means subjects both operator and patient to the full line voltage which might result seriously. The small amount of resistance in the circuit will not prevent a severe shock and most writers suggest the use of a rubber apron to prevent ground connections. This method of reducing the voltage is not alone unsatisfactory but dangerous, and it is folly for anyone to take chances when a perfectly safe method may be employed.

Motor Transformer

The Ritter Ionization Outfit for direct current provides the Ritter Motor Transformer which is so constructed that not more than 40 volts can possibly reach either patient or operator. It consists of a direct current motor with two windings on the armature, and two commutators, thoroughly insulated from each other.



Ritter Motor Transformer for Direct Current

Ritter Motor Generator for Alternating Current

Motor Generator

On alternating current circuits of 110 or 220 volts, means must be provided for obtaining a direct current of 40 volts from the alternating current supply mains. This is accomplished by means of the Ritter Motor Generator which consists of an alternating current motor connected to a direct current generator, both being contained in one case. The generator or dynamo is constructed to generate 40 volts direct current and has no actual electrical connection with the alternating current motor.

BY USING THE GENERATOR THERE IS POSITIVELY NO DANGER OR POSSIBILITY OF SHOCK TO EITHER PATIENT OR OPERATOR AS THE ELECTRIC ENERGY FLOWING IN THE PATIENT CIRCUIT IS PRODUCED THROUGH MAGNETIC INDUCTION ENTIRELY, THERE BEING NO ACTUAL ELECTRICAL CONNECTION BETWEEN THE MAIN SUPPLY CURRENT AND THE PATIENT CURRENT.

The generator is practically noiseless and may be located at any convenient place. It is very compact and could, if desired, be placed in the laboratory or any other available place.

Specifications

CURRENT IONIZATION REGULATOR—Handsomely finished in mahogany enamel, polished nickel trimmings, felt covered base, complete with a 10 milli-ampere meter made especially for us by the Weston Electrical Instrument Company, scale reading from zero to 10, graduated into divisions of 1-20 milli-amperes. Correcting device projecting through dustproof opening in glass cover to adjust needle to zero when no current is flowing. Graduated dial indicates amount of resistance cut out of the patient circuit. Length of resistance element is 12 inches, divided into 1200 sections, making the change in the flow of current from section to section absolutely imperceptible. Equipped with sockets for connections to the generator and to the electrodes. Weight, 2½ pounds.

GENERATOR AND TRANSFORMER—The motor generator and motor transformer are made in our factories of standard Ritter quality and efficiency of operation, completely enclosed in dust proof case, handsomely finished in enamel, polished nickel trimmings.

The motor generator for use with alternating current consists of an alternating current motor armature and a direct current generator armature, wound on one shaft included in one case.

The motor transformer for use on direct current consists of a direct current motor armature winding and a direct current generator armature winding on the same shaft but not electrically connected in any way.

In both cases there is no direct electric connection between patient circuit and main line supply current.

Bearings of both generators of very best phosphor bronze with improved self-contained oiling device same as used on Ritter Engines. ' Brushes same as used on Ritter Engines. ' The A. C. Motor Generator weighs 17½ pounds. ' The D. C. Motor Transformer weighs 9½ pounds.

WIRE CONNECTORS—One double pair connectors, silk covered cord with reversible plug for generator regulator connections. ' One pair single electrode connectors, one red, one green, for current polarity designation, connected to reversible plug.

ELECTRODES—Face Electrode—Provided with a convenient size, mahogany finished, wood handle, with nickel finished metal plate and large knurled thumb screw in the base to facilitate making the wire connections, plate covered with three thicknesses of pure wool felt of the very best quality, which may be easily replaced.

Cheek Electrode—The spring is of the very best phosphor bronze. ' The plates are threaded on the ends of the spring. ' One plate is aluminum, the other is insulated into which a socket is inserted for the wire connection. ' The spring is covered with renewable rubber tubing.

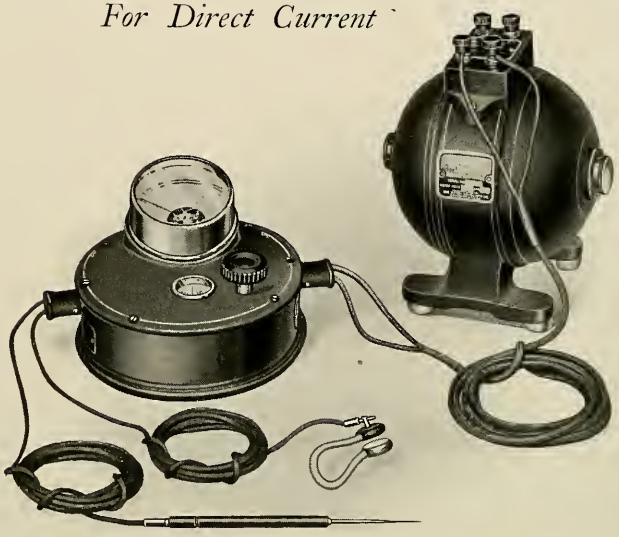
Wire Needles—An assortment of thirty-six zinc (99 9-10% pure) and copper straight, tapered and flattened ends for use in both standard and spring socket holder, packed in books of six.

Flexible Needle Holder—For use with spring socket needles, one end fitted to receive the connection on the wire cord, other fitted to receive the spring socket needle.

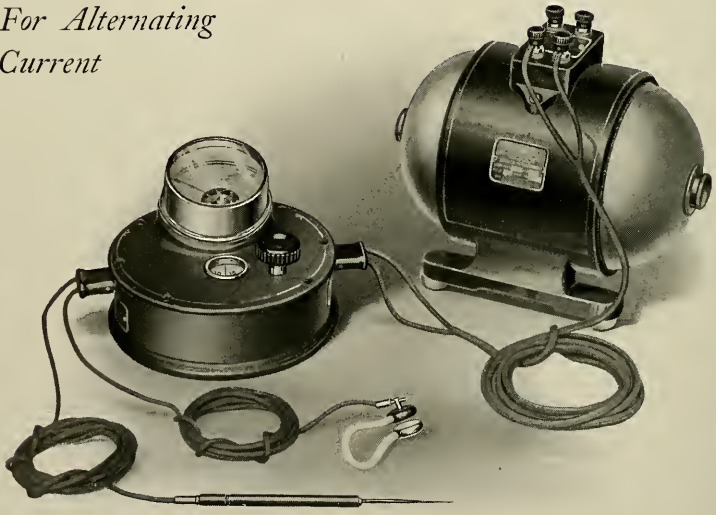
Standard Needle Holder—A hard rubber pencil-like holder for wire needles, with jaw clamps operated by turning upper end of holder.

The Ritter Ionization Equipment

For Direct Current



For Alternating Current



THE Ritter Portable Ionization Equipment illustrated with the proper electrical connections for the apparatus. Supply current to be connected to the Generator. Complete Equipment consists of Ionization Current Regulator, Motor Generator for alternating current or Motor Transformer for direct current; face, cheek and cup electrodes; flexible Needle Holder; Standard Needle Holder; one double connecting cord for Regulator, Generator Connection; one pair single connectors; Regulator Electrode Connections; 36 assorted zinc and copper, taper, blunt and flat needles. Electrodes, needles and holders illustrated on pages 79 to 85.

THE RITTER LABORATORY LATHE

NO DENTAL laboratory is complete without an electric lathe, for this modern electrical appliance is used in innumerable ways in routine work, increasing the capacity and efficiency of the average laboratory to such an extent that the lathe soon pays for itself.

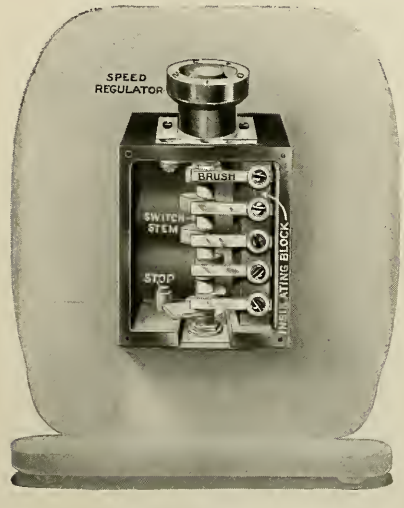
The Ritter Laboratory Lathe is constructed with the same care which is characteristic of all Ritter products and has been designed to deliver the maximum amount of service with minimum expense for operation and maintenance.

It is mounted on a base with rubber feet well spread, to insure a firm foundation and a casing entirely encloses the motor, rendering it absolutely dust and dirt proof. The shaft is near the work table or bench so that the

hands can be conveniently rested on same while polishing and grinding. ⁄ Self-oiling cups insure perfect lubrication. ⁄ The switch is up out of the dirt, yet in a convenient position. ⁄ Both alternating current and direct current lathes are practically noiseless in operation.

Speeds

Four speeds are provided from 1,000 to 3,000 revolutions per minute on the direct current and from 1,200 to 3,600 on the alternating current lathe. ⁄ The various speeds are controlled by a regulator button conveniently placed on the front of the case. ⁄ Practically the same power is obtained at all speeds, with but little or no variation and are under control at all times.



Speed Regulating Switch for Direct Current Lathe. Graduated Button marked Speed Regulator controls the four speeds, each one being indicated.

Bearings

The bearings are interchangeable and in length equivalent to five times the diameter of the shaft, insuring maximum service.

Brush Adjustment

Carbon brushes are used, which can be easily adjusted and can be readily replaced when necessary. ⁄ They are amply large and will give long and continued good service.

Power

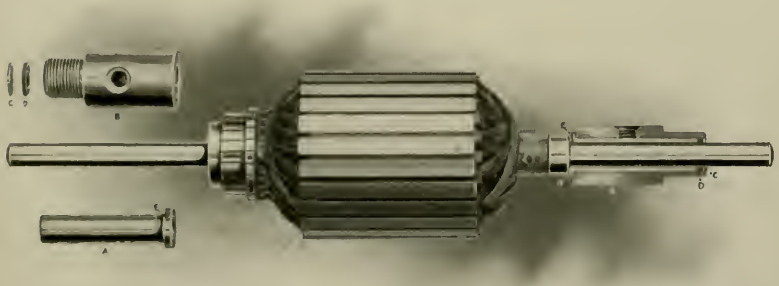
More than ⅛ horse power is developed by the Ritter lathe, rendering it sufficiently powerful for any class of work required in the dental laboratory.

Economy

The amount of current necessary to operate either the direct or alternating current types is less than consumed by a sixteen candle power carbon lamp.

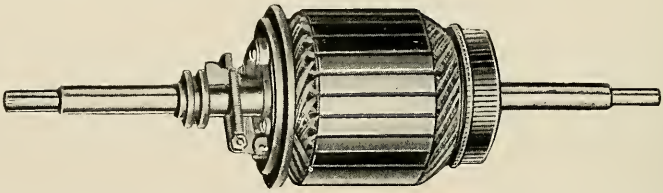
Shaft

The shaft is made of high-grade hardened steel, ground to size and fitted with hardened steel sleeves which in turn run in bearings of the very best metal for the purpose. This construction insures long service as it is possible to renew the sleeves and bearing bushings when they become worn by long use.

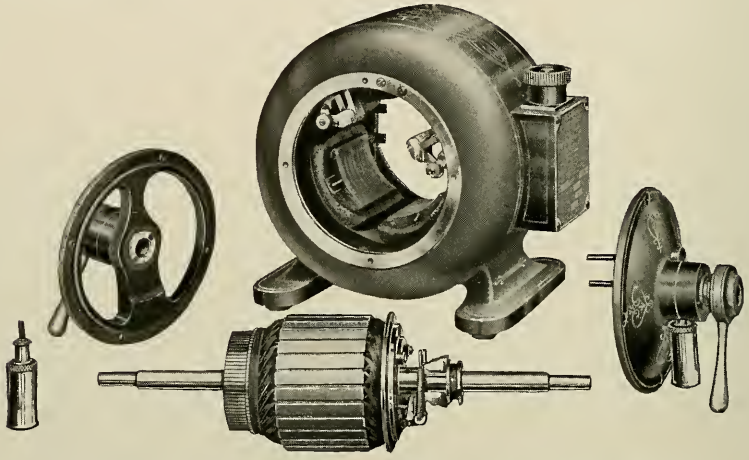


CONSTRUCTION OF LATHE, ARMATURE SHAFT AND BEARINGS

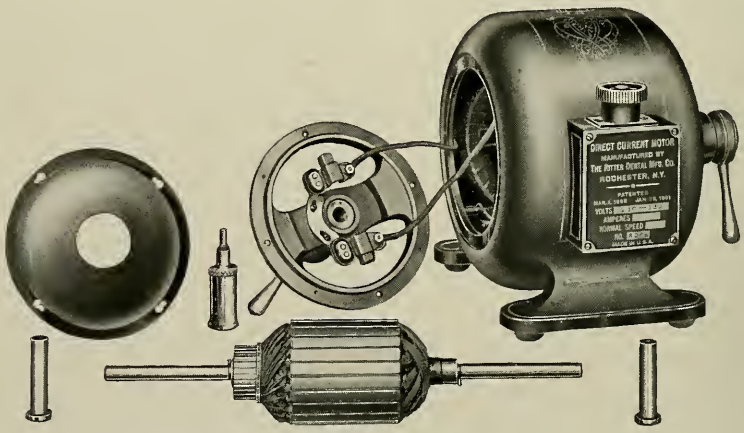
A. Steel Sleeve or Tube.
B. Lumen Metal Bearings in which the steel tube revolves and with it the armature.
C. Brass Washer to hold Felt Washer in place, to exclude pumice and other abrasives from bearings.
D. Felt Washer placed in recessed end of Lumen metal bearing B.
E. Screw to hold steel tube to shaft.



COMPLETE Armature and Speed Regulating Device for Alternating Current Lathe.



GENERAL Construction of Alternating Current Lathe.



GENERAL Construction of Direct Current Lathe.

Lubrication

Positive lubrication is insured as the bearings are oiled by means of special oil reservoirs fitted with wicks which supply the oil by capillary attraction.

Finish

Ritter Lathes are regularly finished in black enamel, with gold striping and all exposed metal parts heavily nickeled, presenting a pleasing appearance and insuring maximum service.

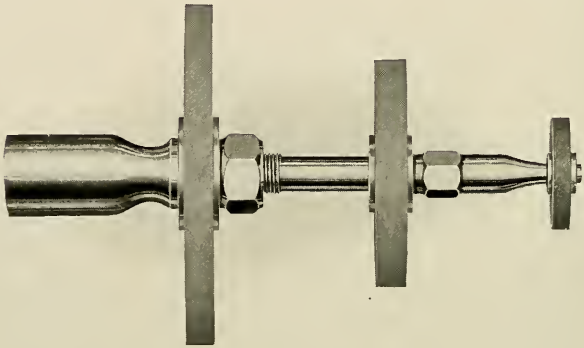
Chuck Removers

The Ritter Lathe is provided with chuck removers consisting of bronze nuts with handles attached, faced with steel and mounted directly on a threaded bearing bushing, requiring only a slight turn to disengage the chuck. The removers work on long bearings to insure great length of life. The chucks on which the abrasive and polishing wheels are mounted can be fitted instantly to the tapering end of shaft and can be as easily removed.

Eight Chucks are regularly supplied with the Ritter Lathe, numbers 1 to 6 inclusive for holding the various abrasive wheels, number 7, a left handed taper screw chuck for cones and brush wheels and number 8, an adjustable chuck for holding handpiece burs.

WE are living in an age where advanced learning demands that dental equipment shall keep pace with the refinement of dental technique.

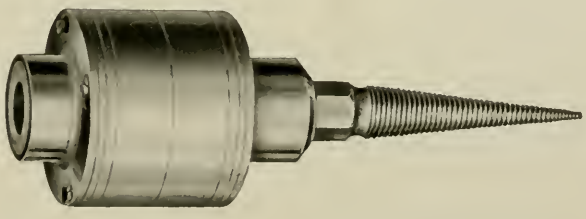
The Ritter Three Wheel Chuck



WHERE the lathe is used for general laboratory work the annoyance of changing the chucks or wheels can be eliminated by the use of a three wheel chuck, which makes it possible to have three wheels of different materials, width and size, mounted on one chuck, so that various kinds of grinding can be done in the most efficient manner.

The Ritter Three Wheel Lathe Chuck, while being primarily made for use on either the right or left side of the Ritter Electric Lathe, can also be used on any lathe using Ritter Style Chucks.

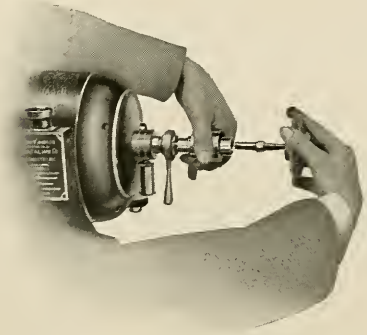
The Ritter Facility Chuck



THE facility chuck enables the operator to keep his polishing wheels constantly mounted for they can be instantly attached to or removed from the laboratory lathe while the same is running, thus eliminating the necessity for taking the chuck off the lathe, removing the wheel, putting another wheel on the chuck, replacing the chuck on the lathe or going through any other procedure usually employed in making these changes. The facility chuck can remain permanently attached to the lathe or can be instantly removed if so desired.

To release the threaded taper spindle while motor is running, grasp outside of chuck shell with one hand, as shown above, then immediately push same forward, after which the taper spindle can be removed by pulling it out of the chuck with the other hand.

The body of the facility chuck is made of phosphor bronze with a taper bore to fit the taper of the shaft. The opposite end has a steel sleeve lining to prevent wear by constant interchanging of spindles. The interior of the chuck contains threaded steel jaws, the action of which is governed by the sliding movement of the chuck shell; by pushing the chuck shell forward the jaws are

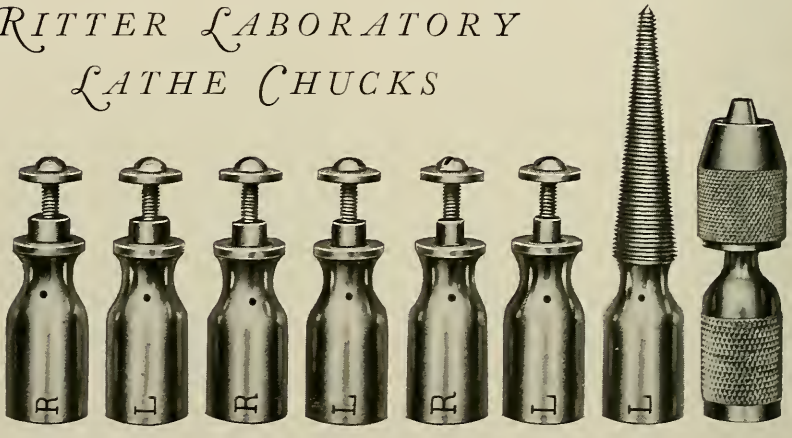


Releasing hold on chuck shell permits it to automatically return to its normal working position, thus permitting another taper spindle to be applied without stopping the lathe.

extended and the spindle easily removed and when released the shell is instantly returned to normal position by means of a spring.

Four arbors are furnished with each facility chuck to provide for keeping that number of polishers mounted permanently.

Ritter Laboratory Lathe Chucks

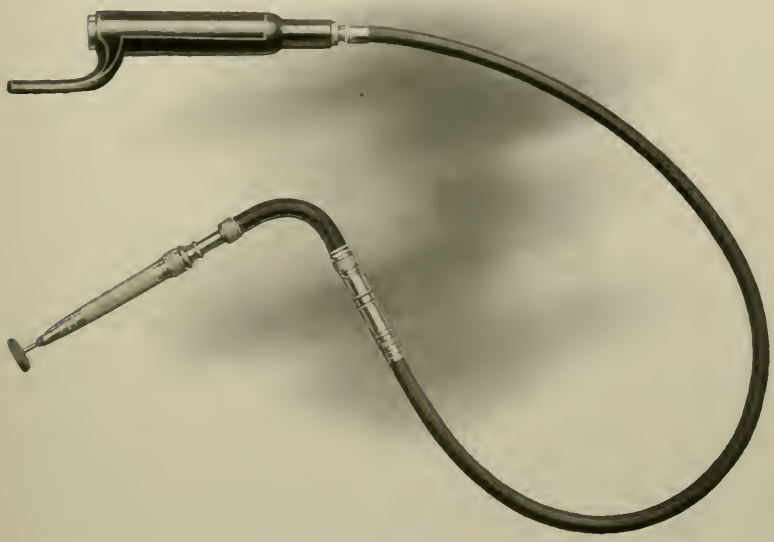


1 2 3 4 5 6 7 8

These eight chucks are regularly supplied with the Ritter Laboratory Lathe. Numbers 1 to 6 for holding various abrasive wheels. No. 7, left handed taper screw chuck for cones and brush wheels. No. 8, adjustable chuck for holding handpiece burs. No. 1 right, hub ⅜″ in diameter. No. 2 left, hub ⅜″ in diameter. No. 3 right, hub 5/16″ in diameter. No. 4 left, hub 5/16″ in diameter. No. 5 right, hub ¼″ in diameter. No. 6 left, hub ¼″ in diameter.

RITTER HAND-PIECE ATTACHMENT

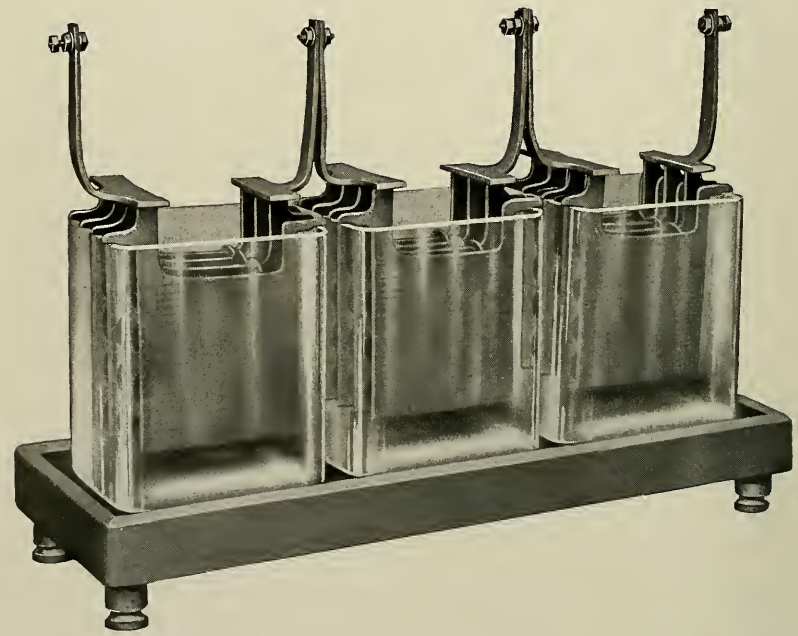
for Ritter Laboratory Lathe



THIS attachment consists of a fitting which enables a flexible shaft to be operated with the lathe in connection with the usual engine handpiece, providing a most convenient and practical means of using the smaller dental engine instruments in the laboratory for innumerable kinds of work such as finishing plate work, for touching up articulation, for grinding teeth and bridge work and trimming and finishing after soldering. The attachment readily fits on the taper end of the lathe shaft and is applied and removed as quickly as one of the lathe chucks.

Ritter Six Volt Storage Batteries for Operating Ritter Engines and Lathes

STORAGE Batteries for the operation of our engines and lathes are intended for use in localities where no supply current of electricity is available during the day. Ritter Engines and Lathes for use on battery current are constructed to operate efficiently and at minimum cost, and when the batteries are properly installed and cared for the service rendered will be found very satisfactory.



Ritter Six Volt Storage Battery, which will operate both the engine and lathe.

The Ritter Storage Battery

Ritter storage batteries are made for us by one of the leading battery manufacturers universally known for the exceptional high quality of their product and every battery is covered by their broad guarantee which insures satisfaction to the purchaser.

Charging from Direct Current

In some localities, Electric Light Companies supply 110 volt direct current, but at night only, under which circumstances the batteries can be charged during the night and be available for running the engine and lathe during the day.

It is necessary to place a resistance in the path of the charging current to prevent too great a flow of electricity and a simple knife switch should be provided to cut off the current after the batteries are charged, as indicated when the solution begins to bubble freely.

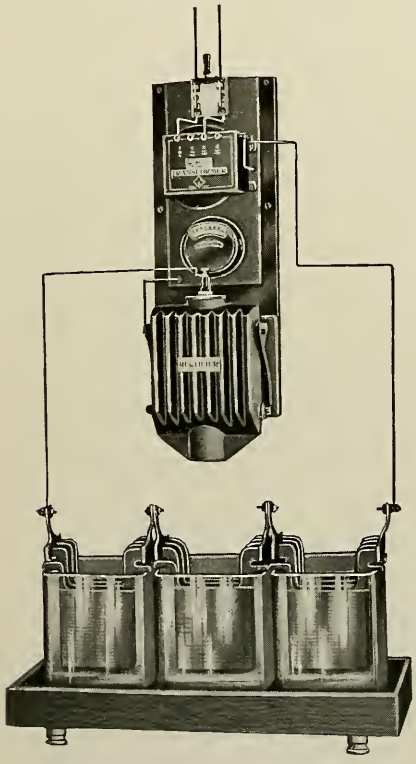
Glass jars are used with Ritter Batteries for it is important that the same be kept well filled with the acid solution, which can be readily ascertained when glass jars are used, but is rather difficult with the sealed type of batteries such as used in automobiles.

Charging from Alternating Current

The charging current for batteries must always flow in the same direction and as alternating current changes its direction or flow many times each minute, it is not suitable for charging purposes until it has been transformed into direct current, for which purpose a rectifier is necessary to receive the alternating current and transform it to direct current.

The Ritter Rectifier

The Ritter Rectifier contains but seven parts, consisting of a frame to hold the outfit; a cut-out switch to control the supply current; a transformer to reduce the current from 110 or 220 volts, as the case may be, to the proper voltage to charge the battery, an ammeter to show the amount of current the rectifier is delivering; a rectifier receptacle to hold the solution; the electrolyte and aluminum electrode. The only care that the rectifier requires is to clean the receptacle containing the solution occasionally, with diluted sulphuric acid.



Ritter Rectifier and Six Volt Storage Battery

The solution and aluminum electrode should be replaced every three or four months, the time depending upon how often the rectifier is used to charge the battery. When a renewal is necessary, both the chemical for the solution and the aluminum electrodes can be obtained of any dental dealer at a very nominal cost.

Cost of Operation

Ritter six volt engines consume from 2½ to 5 amperes of current according to the load, so that they would operate from one charge of the battery for five or six days. However, as the battery

should never be entirely exhausted it is advisable to charge the same several times each week in accordance with the directions accompanying each outfit.

The Ritter six volt laboratory lathe consumes from six to seven amperes of current or practically double that of the engine.

Assuming that the average practitioner uses the engine two hours and the lathe one hour each day, the total consumption of current from the batteries would be approximately fifteen ampere hours making the cost of operation of the engine about 1½c per hour and the lathe 3c per hour, figuring the supply current at an average cost of 12c per kilowatt hour.

AS an aid in the practice of dentistry, modern equipment is essential and in efficient dentistry a necessity.

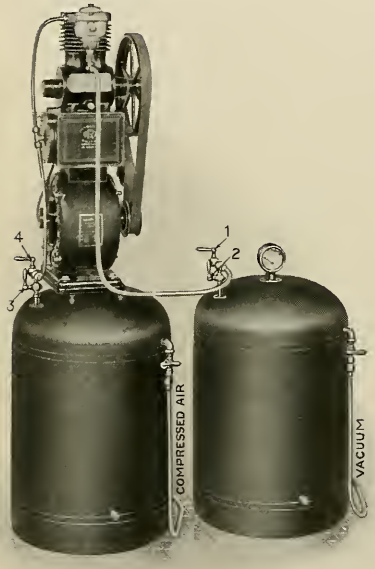
The value of electricity and compressed air as operative agents is unquestioned. They are not considered an unnecessary addition to equipment nor a mere convenience, for both time and experience have demonstrated their positive need for certain classes of work that were heretofore impossible to perform without their aid.

The electric engine, lathe, air compressor and other modern equipment have become just as essential in the average practitioner's daily work as the dental chair itself.

Vacuum Attachment

For Ritter Automatic Air Compressor Unit

MANY practitioners are using vacuum in their practice for removing blood, chips and waste matter from teeth and all parts of the oral cavity, for casting inlays, for massaging and in the treatment of pyorrhea.



By the addition of an extra air tank and a few fittings The Ritter Air Compressor Unit can be used both for delivering compressed air and for creating a vacuum and wherever these outfits have been installed they have given entirely satisfactory service.

To create vacuum in the Vacuum tank, valves one and three are closed and valves two and four are opened. Approximately 2½ minutes are required to create a vacuum of 24 inches and 5 minutes for 26 inches.

To maintain the vacuum, valve two is closed and one and three are opened, after which four is closed, in which position the compressor will continue to run forcing air into the compressed air tank, provided the pressure in same is below the minimum, 30 pounds. If above minimum the pump will automatically stop.

When the desired vacuum is obtained the motor is stopped either by opening the main switch or by cutting out the vacuum tank by means of the valve as explained above, for the motor will not stop automatically when creating a vacuum.

The Ritter Sub-Base

For The Ritter Unit Equipment

RITTER white porcelain, enameled sub-bases are very durable, can be readily cleaned, give a finishing touch to the base of the unit, and protect the finish of same, for the porcelain is not affected by water and will not readily chip, mar or scale.

When it is necessary to install the unit with piping exposed above the floor, the sub-base is absolutely essential and makes the installation a simple matter, as outlets are provided in the sub-base for the piping and the height of same gives ample room in which to make all connections.

Style C

Ritter Sub-Bases are furnished in three different styles to provide for various methods of installation and we recommend the use of one with every Unit Equipment.

Style A—For piping that is run through the floor or concealed. See illustration of unit with style A sub-base on page 63.

Style B

Style B—Where pipes are exposed above the floor, running from the wall and entering unit at the back.

Style C—For pipes exposed above the floor, running from the wall and entering end of unit.

Ritter Engine Belts

TO obtain maximum power and efficiency from engines of our manufacture it is necessary that proper belts be used, since the grooves in the Ritter Engine Drive Pulley Wheels are of such shape and construction that if the belt is properly shaped, same will have a large bearing surface, thereby insuring maximum power and minimum wear.

Ritter Engine Belts are made to meet these conditions. They are strong and supple, because made of the finest sea island cotton, with a solid core and a closely woven covering, thereby eliminating practically all stretching.

Perfect splicing insures the belt passing over the pulleys without jar, in fact, with the same freedom as the body of the belt and as they hug the pulleys tightly and do not slip, it insures added life to the pulleys and belt and power from the engine.

Ritter Belts are packed in readily distinguishable cartons and are carried in stock by all dental supply dealers.

RITTER ENGINE OIL

PROPER lubrication is absolutely necessary to obtain maximum service from an engine, lathe or handpiece, for contrary to the generally accepted belief, all oils do not lubricate.

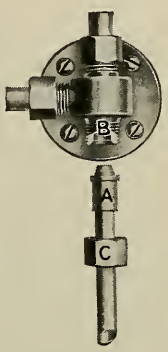
Ritter Engine Oil is a perfect lubricant, because it possesses the proper viscosity to give adequate lubrication and at the same time gets into fine interstices, such as will be found on Ritter Engines, Lathes and engine handpieces.

Ritter Oil is light amber in color, is agreeably perfumed and will not congeal nor separate. Sold only in sealed bottles, packed in cartons and can be obtained of any dental supply dealer.

Ritter Air Fittings and Block Tin Pipe

THE construction of the pipe lines for compressed air is equally as important as the correct installation of the Unit Equipment, Distributing Panel or Air Compressor, for leakage in air lines is a source of both expense and trouble, often causing a compressor to do double duty in order to maintain the required air pressure. Ritter Metal to Metal Cone Seat Air Fittings and Block Tin Pipe insure an equipment that will be air tight, not affected by atmospheric changes and with ordinary care and attention will last for an indefinite period.

Air Fittings with air passages of reduced area cause annoyance and trouble when instruments are used requiring a considerable volume of air for their proper manipulation. Ritter Fittings have air passage of the same size as the air lines, consequently no greater pressure is needed to force air through the air fittings than through the air lines themselves.



A, cone shaped ferrule soldered on tubing which enters the cone shaped opening, *B*, after which *A* and *B* are drawn together by means of the hexagon nut, *C*, making an air tight joint without washer or packing.

Ritter Couplings for attaching block tin pipe to Ritter Fittings are constructed with a cone shape end which enters a socket in the fitting after which the two parts are firmly compressed together by means of a nut, producing a permanent air tight joint which will effectively hold air pressure and is not affected by atmospheric changes.

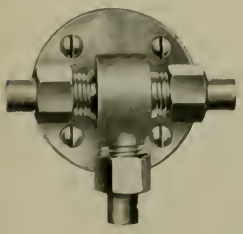
Ritter Air Valves are constructed with an indicator valve handle which opens and closes with perfect ease and which can be adjusted to take up any wear on the valve seats.

Ritter Air Cocks are all of the needle valve type which permits very accurate adjustment and makes possible compensation for any wear of the valves. ✓ Ritter Pressure Reducing Regulators can be adjusted to any desired pressure and the same maintained regardless of changes of pressure in air tank.

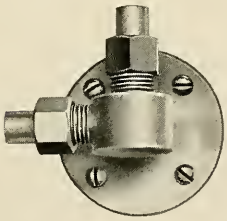
All Ritter Air Fittings have adjustable Wall Plates, so that the air openings may be set to point in any desired direction, up or down, right or left or straight out.

Ritter Block Tin Pipe is an ideal material for air line work because moisture has no effect upon it, it can be made air tight and being very flexible can be bent in any shape, thus making the laying of pipe lines a comparatively easy matter. ✓ Copper and brass pipe are very unsatisfactory for the reason that the moisture which forms in all air lines corrodes these metals rendering them unsanitary. ✓ Iron pipe is practically worthless owing to its tendency to rust as well as from the fact that it is almost impossible to make air tight joints.

Ritter Block Tin Pipe can be procured in various lengths with connections soldered thereon, making it entirely possible for anyone to construct the average air line without any special tools other than a wrench or without previous experience in the work.



Universal Tee Fitting for running a branch off main line pipe. ✓ Outlet may be placed up, out or down.

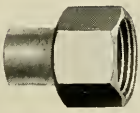


Elbow, used at end of air line, so special metal tubing can be run to panel instead of continuing ordinary block tin pipe.

Double Threaded Nipple for connecting ends of air line, to be used in connection with Union Coupling.

Plug, used in connection with union coupling for closed end of air line.

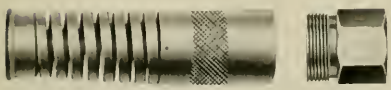
Single Threaded Nipple, used in extending an existing air line, fitted with a union coupling.



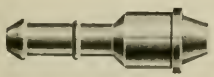
Union Coupling, small end to be soldered over air tubing and by means of nut it can be fastened to air fitting without using washers.

Union Elbow Coupling with Combination Ferrule and spring hose protector, for hose connection for attachment to any of our air fittings with outlet up or down.

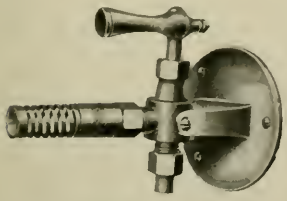
Cap Nut, complete with plug, used to close openings in air fittings.



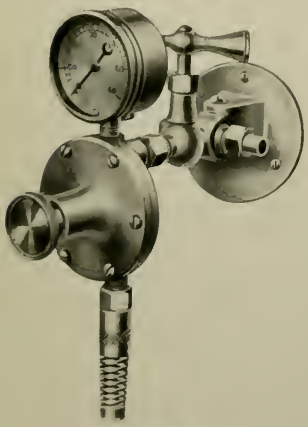
Ferrule and Spring Hose Protector, for use on our air fittings. ✓ Frayed ends of hose are covered and spring prevents hose from breaking.



Hose Tip, for attaching hose to connections and also used in conjunction with spring hose protector.

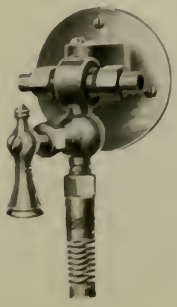


Terminal Valve, for use in the laboratory or operating room or at the end of an air line.

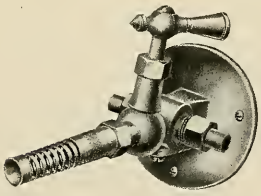


Terminal Valve with Pressure Reducing Regulator and Gauge, to be placed on end of air line for the purpose of supplying air pressure lower than maximum tank pressure. ✓ By means of a hand wheel pressure can be adjusted to the desired amount shown on the gauge. ✓ The valve handle may be placed at the top, bottom or either side.

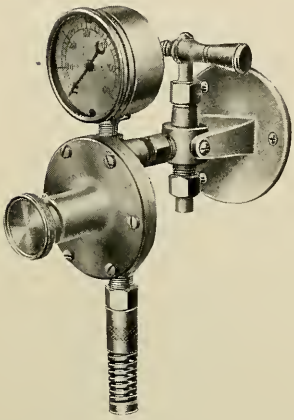
Branch Cock Fittings are used when several outlets are desired on same line of pipe.



Branch Cock, hose connection down.

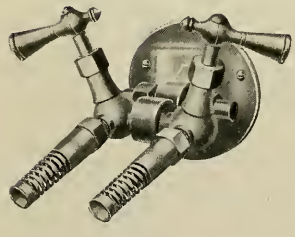


Branch Cock, hose connection out.

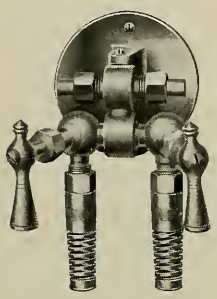


Branch Cock, with pressure reducing regulator and gauge, to be placed in the main line pipe for the purpose of supplying air pressure lower than maximum tank pressure. By means of the hand wheel the pressure can be adjusted to the amount desired as shown on gauge.

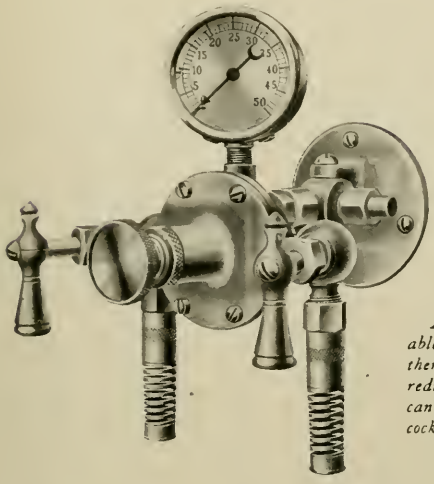
Double Branch Cock fittings are used when several outlets are desired on same line of pipe with two hose outlets at each location. They can also be used on end of air line by closing one pipe opening with our Cap Nut.



Double Branch Cock with two hose outlets pointing out.

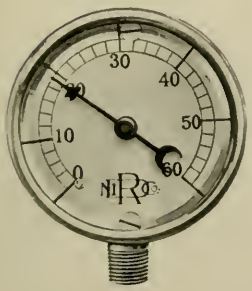


Double Branch Cock with two hose outlets pointing down.

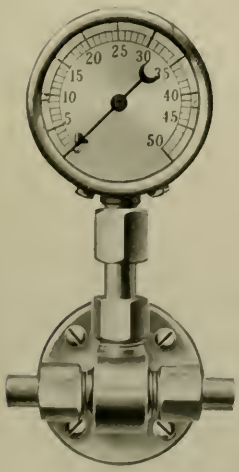


Pressure Reducing Regulator and Gauge with two hose outlets pointing down.

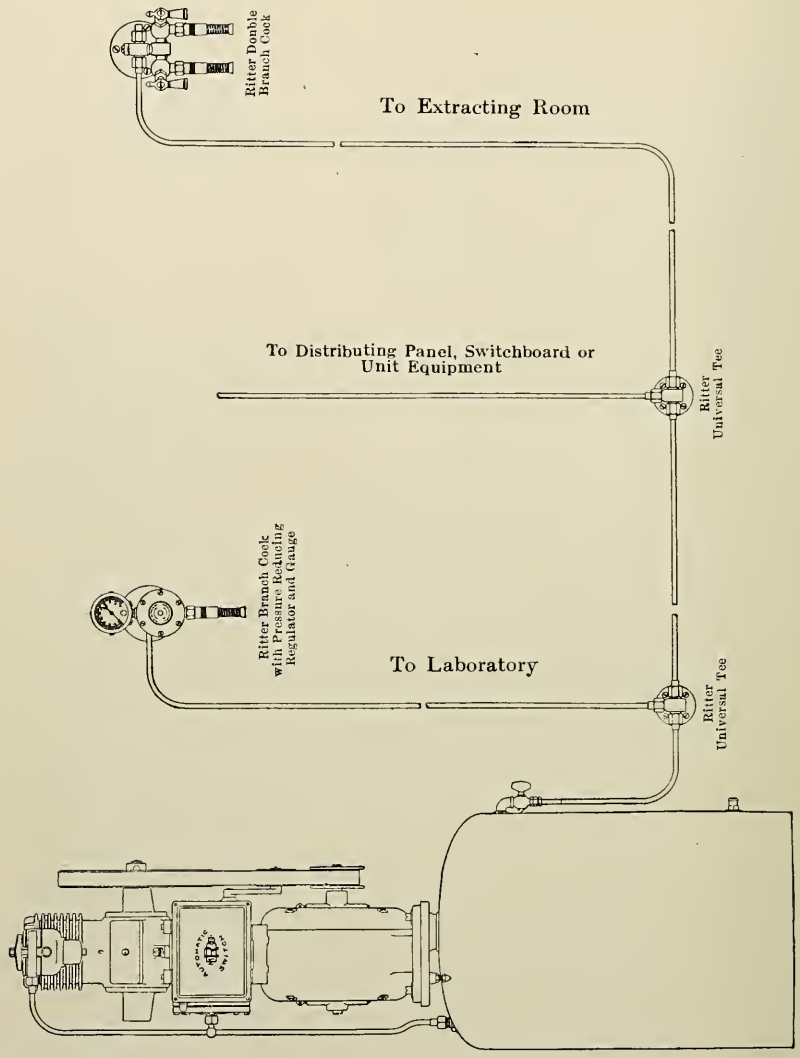
Air Regulator—The importance of being able to control air pressure is of great value, therefore our fittings are provided with a reducing feature so that an air regulator can be fitted to the terminal valve or branch cock at any time.



Gauge—A gauge is necessary to accurately determine the air pressure. Ritter gauges are of high quality and are accurate in registration.



Gauge and Tee—This combination supplies a convenient method of determining pressure on air lines at any point.


Ritter Double Branch Cock
To Extracting Room
To Distributing Panel, Switchboard or Unit Equipment
Ritter Universal Tee
Ritter Branch Cock with Pressure Reducing Regulator and Gauge
To Laboratory
Ritter Universal Tee

Pipe Diagram

Showing three air outlets with compressor unit in laboratory connected at end of air line. Outlets can be arranged in different rooms, one near the bench in laboratory with a pressure regulating valve, one to unit equipment or distributing panel in operating room and one for extracting room with pressure regulating valve.

INDEX

	Page
Air Cut-Off	51-53
Air Compressor	72-77
Air Filter	57
Air Fittings	104-109
Antrum Lamp	55
Ball Point	56
Bleacher Point	55
Block Tin Pipe	104-105
Cautery	55
Chair	7-21
Code Index	112
Distributing Panel	38-48
Electrical Instruments	54-56
Engine	22-37
Engine Belts	102
Engine Oil	103
Examination Lamp	55
Facility Chuck	93-94
Foreword	3
General Information	5-6
Guarantee	4
Gutta Percha Excavator	56
Hand Piece Attachment	95
Hot Air Syringe	49-50
Index	111
Ionization Equipment	79-86
Laboratory Lathe	87-91
Laboratory Lathe Chucks	94
Pipe Diagram	110
Root Canal Drier	56
Spray Bottles	58-59
Spray Bottle Warmer	60
Storage Batteries	96-99
Switch Handles	51-53
Three Wheel Chuck	92
Tooth Tester	78
Unit Equipment	61-71
Unit Sub-Base	101
Vacuum Attachment	100
Wax Spatula	56

Price List in envelope on inside back cover.

CODE INDEX

Cable Address: Ritter-Rochester

Fable	25	cycles	(3000	alternations)	
Fabe	30	"	(3600	"	)
Fabric	40	"	(4800	"	)
Fabricate	42	"	(5040	"	)
Fabulist	43	"	(5160	"	)
Facade	45	"	(5400	"	)
Faddle	46	"	(5520	"	)
Fadge	47	"	(5640	"	)
Faith	48	"	(5760	"	)
Face	50	"	(6000	"	)
Fack	53	"	(6360	"	)
Facing	60	"	(7200	"	)
Facet	66	"	(8000	"	)
Fancy	68	"	(8160	"	)
Facin	70	"	(8400	"	)
Facial	75	"	(9000	"	)
Fail	80	"	(9600	"	)
False	83	"	(9960	"	)
Fashion	90	"	(10800	"	)
Fasten	93	"	(11160	"	)
Faction	100	"	(12000	"	)
Fad	125	"	(15000	"	)
Fade	133	"	(16000	"	)

Fag	48	volts	*Fanatic*	108	volts
Fagot	50	"	*Fancied*	110	"
Fain	52	"	*Fane*	115	"
Fairy	55	"	*Fang*	120	"
Falcate	58	"	*Fantom*	125	"
Falcon	60	"	*Farce*	200	"
Fallacy	88	"	*Faring*	210	"
Fallow	92	"	*Farina*	220	"
Falter	96	"	*Faro*	240	"
Fame	100	"	*Farther*	250	"
Famine	104	"			

Farrier Mail brushes for 6-v. Lathe No...

Farrow Mail brushes for 110-volt or 220-volt Lathe No.....

Fatal Mail brushes for 110-volt Direct Current Engine No.....

Fate Mail brushes for 220-volt Direct Current Engine No.....

Fatally Mail brushes for Alternating Current Engine No.....

Fathom Mail brushes for 4-volt Direct Current Engine No.....

Fatigue Mail brushes for A.C. Lathe No..

Fatling Mail Round Governor brushes for A. C. Lathe No. ... .

Fatten Add to our order of.....

Fatty Add to our last order.

Faun Advise us voltage wanted your order of.....

Fay Advise us alternations wanted your order of.....

Fealty Advise us voltage and alternations wanted your order of ..

Feared Answer by mail.

Fearful Answer by cablegram.

Feast Answer by telegram.

Feign By what route shall we ship?

Feint Cable immediately.

Feline Can you ship promptly on receipt of order.

Fellow Can ship promptly.

Felon Duplicate our order of .....

Felt Duplicate our last order.

Felspar Do not insure.

Fend Hold for instructions our order of.....

Fern Hurry forward goods on our order of.....

Ferrett Hold for instructions our last order.

Ferry Have remitted.

Fertile Have you sent remittance?

Fervor Have you shipped goods on our order of .....

Festal Have you shipped goods on our order of.....
If not, when will you?

Festive Include in next shipment.

Feud Insure shipment.

Fever Letter follows giving detailed information.

Fib Prepay freight.

Fickle Referring to your letter of .....

Fiction Referring to our letter of .....

Fiddle Referring to your cablegram of.

Fidget Referring to our cablegram of ..

Fiend Rush our order of .....

Fierce Ship by express.

Fife Ship by express C. O. D.

Fight Ship by express to the Doctor.

Filbert Ship by freight to the Doctor.

Filch Ship by mail to the Doctor.

Fin Ship by mail to us.

Fist Ship by freight.

Fitful Shipped by express on .....

Fizz Shipped by freight on .....

Frail Send bill of lading to customer.

Flake Send bill of lading to us.

Flame Trace shipment.

Flannel When will you send remittance?

Flap Where shall we send bill of lading?

Flank We have shipped.

Flash We will ship.

THE GENESEE PRESS OF ROCHESTER

COLUMBIA UNIVERSITY LIBRARIES

This book is due on the date indicated below, or at the expiration of a definite period after the date of borrowing, as provided by the library rules or by special arrangement with the Librarian in charge.

DATE BORROWED	DATE DUE	DATE BORROWED	DATE DUE
C28(946)M100			

COLUMBIA UNIVERSITY LIBRARIES (hsl.stx)
RK 686 R51 C.1
A cat[redacted]

RK686 R51

Ritter dental manufacturing co., inc.
A catalogue of Ritter dental equipment.

RK686 R51